The Journal of the American Medical Association

Published Under the Auspices of the Board of Trustees

VOL. 72, No. 2 CHICAGO, ILLINOIS JANUARY 11, 1919

THE SIGNIFICANCE OF TUBERCULOSIS IN INFANTS AND CHILDREN

WITH MEASURES FOR THEIR PROTECTION *

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One of the most important advances in recent years in connection with the study of tuberculosis has been the realization that human infection by tubercle bacilli takes place usually during infancy or early childhood. If we consult medical treatises written forty or fifty years ago we find it stated that infants rarely are subject to tuberculosis; accordingly, this aspect of the disease is dismissed with scant consideration.

To von Behring belongs the credit of focusing our attention sharply on this new aspect of the problem—an attention which has been allowed gradually to lag and wander. If we are to benefit to the full by this new knowledge in our arduous fight against this disease, concentrated study should be devoted to gaining a comprehensive understanding of all that pertains to infection at this period. It is evident that such knowledge primarily includes a clear conception of the sources of infection, of its frequency at various ages, and of the several factors that tend to influence its clinical course.

Almost all mortality statistics dealing with tuberculosis calculate the death rate according to one of the two standard methods: either in relation to the mortality from other diseases at the same age period, or in terms of deaths per thousand or ten thousand living individuals of the same age. When the former, or "comparative method," is carried out in regard to the first year of life, tuberculosis is compared principally with the large volume of deaths due to prematurity and to diarrheal and respiratory diseases. Such a comparison may readily lead us into the error of considering it a disease of minor importance. This method of assigning each disease its relative rather than its absolute status is valuable for those who are making a study of a particular age period. In the case in point, for example, it is of interest to those concerned solely in infant welfare. It may lead us far astray, however, if we desire information as to the actual importance of tuberculosis in the early years of life, in order to ascertain whether it constitutes a serious problem in combating this disease. A similar criticism holds true, to a less extent, when we consider the deaths from tuberculosis in their ratio to living individuals. Manifestly there must be more people alive under the age of 1 year than in any other one year period. Accordingly, an equal number of deaths from tuberculosis will appear less numerous and important at this time of life if calculated on such a percentage basis. It is clear, therefore, that we who are interested in investigating tuberculosis will not come to a clear understanding of our problem by adopting either of these statistical points of view. It will be advisable for us to ascertain in absolute numbers how many deaths occur year by year, or period by period, in order to obtain a true concept of the ravages of this disease.

GREAT MORTALITY IN FIRST YEAR OF LIFE

With the cooperation of Dr. Guilfoy, registrar of the Department of Health of the City of New York, I have prepared tables designed to throw the subject into relief from this point of view. The first table gives the absolute number of deaths from tuberculosis at different ages in Greater New York for the past five years (Table 1). A glance shows the large number of deaths from tuberculosis during the first and second years of life, and further study brings out the striking fact that the deaths during the first year of life exceed those of any other year excepting the period between 35 and 40. When we take into consideration the great difficulty in diagnosing tuberculosis in the infant, and the number of cases that doubtless are mistakenly registered as congenital debility (a group that comprises over one quarter of the deaths of infants under 1 year), it would seem no exaggeration to state that *deaths from tuberculosis in no one year exceed those of the first year of life.* It is evident, therefore, that, in our efforts to combat tuberculosis, attention should be directed to the infant.

TABLE 1.—DEATHS FROM TUBERCULOSIS IN NEW YORK CITY (1913-1917) ACCORDING TO YEARLY PERIODS

Age Period (Year)	Pulmonary	Other Forms	Total
0- 1	205	1,064	1,269
1- 2	184	967	1,151
2- 3	98	604	702
3- 4	81	359	440
4- 5	74	280	354
5- 9*	63	134	197
10-14	114	54	168
15-19	514	72	586
20-24	938	78	1,016
25-29	1,069	78	1,147
30-34	1,110	62	1,172
35-39	1,307	50	1,356
40-44	1,058	71	1,129

* Figures after 5 years of age are averages of quinquenniums.

A consideration of the mortality from tuberculosis during childhood naturally leads to the inquiry as to when the children become infected; it calls for sta-

*Read before the Trudeau School of Tuberculosis, Saranac Lake, July 17, 1918.

tistical information in regard to infection. There have been many studies of the frequency of tuberculosis infection in childhood, especially since simple methods of applying the tuberculin reaction have come into vogue.

One of the most thorough inquiries of this kind has been carried out during the past two years by Dr. Bass[1] at the Home for Hebrew Infants, an institution harboring about 400 children under 6 years of age. It should be borne in mind that children of this kind come from the poorest quarters of the city, and therefore cannot be considered representative of the entire urban population. Bass found in over 1,000 tests that 7.8 per cent. of the infants under 6 months of age reacted positively to tuberculin, that 15.8 between 6 and 12 months reacted, and that 75 per cent. of the children between 5 and 6 years gave a positive reaction (Table 2).

These percentages may impress one as exceedingly high, and, in point of fact, are higher than those reported by many others. On the other hand, we find that Calmette[2] and his co-workers found that 8.7 per cent. of infants under 1 year had a tuberculous infection, and that Kaspar[3] placed this figure at 10 per cent. A single von Pirquet test would not lead to these results. If, however, multiple tests are made and the intracutaneous method (Mantoux) is employed, a far larger number of positive reactions will be elicited

TABLE 2.—AGE DISTRIBUTION OF PATIENTS REACTING POSITIVELY TO CUTANEOUS OR INTRACUTANEOUS TEST

Age	Number Tested	Reacting Positively	
		Number	Per Cent.
0-6 months	51	4	7.8
6-12 months	38	6	15.8
1-2 years	29	5	17.2
2-3 years	45	14	31.1
3-5 years	28	12	42.8

than when reliance is placed on a single cutaneous test. For the tests to which we have reference, three cutaneous as well as three intracutaneous inoculations were made at appropriate intervals.[4]

After the first two years of life, a quiescent period gradually begins to set in as regards the development of clinical tuberculosis. We also find year by year that fewer children die from this disease (Table 1), notwithstanding the fact that, as just mentioned, the number of infections steadily increases. Another change to be noted is that, whereas during the first few years of life there are comparatively few deaths from pulmonary tuberculosis, the great majority being due to meningitis, at about 10 years of age this relationship is reversed, and from this time forward the great majority of deaths are due to pulmonary involvement.

There is a second active phase in the development of tuberculosis. This is usually associated with the quinquinquennium from 10 to 14 years, and has been recognized for some time. It was brought out some years ago by Guilfoy,[5] who showed that the death rate from tuberculosis in New York City in 1907 had increased during this age period as compared with that in 1867. It is a subject which has been emphasized recently in an excellent report by Dublin[6] on the mortality of childhood. We shall consider it later in detail.

EXPOSURE AND SUSCEPTIBILITY

What is the cause of these periods of exceptional mortality? Let us first take up the period of infancy, and study the factors which during these first years of life predispose to death from tuberculosis. These may be summarized as increased exposure, heightened susceptibility, or a combination of these two factors. There can be no doubt that, when a tuberculous mother or nurse cares for an infant, it is exposed to infection to a degree far greater than are the older children of the household. Close contact under such conditions renders escape from infection almost impossible, so that it can be accepted as axiomatic that marked exposure plays a rôle in the high mortality that we have recorded. There is, moreover, the double danger of frequent infection and of transmitting a large number of tubercle bacilli—the natural result of the fondling of a baby by a tuberculous person. This question of the dosage of the infecting agent is probably one of the most important factors bearing on the tuberculosis of infants. It is thoroughly appreciated by those who have devoted thought to this subject that, as the result of the intimate contact, the infant must take in a large number of tubercle bacilli. It is not, however, generally appreciated that the quantity of bacilli is large, not only from an absolute point of view, that is, in point of numbers, but also relative to the size of the infected individual. In animal experimentation we note carefully, not only the amount of virus with which we inoculate an animal, but also the weight of the animal inoculated. It is probable that, in general, the same laws hold good in relation to human infection. If such is the case, we must bear in mind that an infant weighing from 8 to 15 pounds and taking in an average number of bacilli, is receiving relatively ten to twenty times the dose of an adult. The size of the host is relatively ten to twenty times smaller.

In addition to the factor of high dosage it is generally admitted that infants are peculiarly susceptible to tuberculosis, causing the infection to run a particularly rapid course. This phenomenon is commonly attributed to the fact that infants furnish virgin soil for the tubercle bacillus, not having acquired any immunity as the result of previous infection. This explanation for their marked vulnerability, which is unquestionable, should not be allowed to pass unchallenged. If this were the full explanation, we should expect that an older child, one of 5 or 10 years of age, who is infected for the first time, should likewise develop progressive tuberculosis. Such, however, is not the general experience. Some years ago a tuberculous nurse in an infant asylum infected a group of children from 3 to 5 years of age.[7] Many of these young children, who previously had repeatedly given a negative reaction to tuberculin, developed a positive reaction within a short period. In other words, they were infected for the first time at this age, having

1. Bass, M. H.: Cutaneous and Intracutaneous Tuberculin Tests in Infants and Children, Am. J. Dis. Child. **15**: 313 (May) 1918.
2. Calmette, A., quoted from Jeanneret, L.: La tuberculose de l'enfant, Paris, 1915.
3. Kaspar, K., quoted from Jeanneret (note 2).
4. Although the intracutaneous test is more delicate than the von Pirquet test, it should not be taken for granted that, if the former is negative, the latter in all instances must likewise be negative. We have encountered cases which gave no reaction to repeated intracutaneous injections but responded to the skin test. This aspect of the tuberculin reaction deserves further study and elucidation.
5. Guilfoy, W. H.: New York M. J. **88**: 1018, 1908.
6. Dublin, L.: Am. Statistical Assn., March, 1918.
7. Hess, A. F.: Report of a Group of Infants Infected by a Tuberculous Attendant, J. A. M. A. **60**: 1617 (May 24) 1913.

lived in the sheltered surroundings of an institution. None of them, however, developed tuberculous meningitis or other active form of tuberculosis, such as would certainly have occurred had this unfortunate accident taken place during the early months of their lives. It would seem that age brings with it a certain degree of immunity, just as it does in scarlet fever, diphtheria and some other of the infectious diseases. It may be that in addition to a specific immunity, there is a general immunity, brought about by the various infecting viruses, and that the particular susceptibility of infants to tuberculosis is due in part to the fact that their tissues have never had to react protectively to pathogenic bacteria.

BOVINE INFECTION

In an analysis of the causes leading to the high infantile mortality, another factor has to be considered which is brought about both by exceptional exposure and special susceptibility. I have reference to deaths due to infection of the bovine type of tubercle bacilli. As is well known, this is still a mooted question, some believing with Koch that this agent does not need to be considered in a study of the tuberculosis problem. However, in the comprehensive investigation of human and bovine tuberculosis carried out by Park and Krumwiede,[8] about 15 per cent. of the deaths of children under 5 years of age were due to bacilli which they identified culturally as bovine in type. This, accordingly, is a factor which must be considered in accounting for the high mortality of this period, although it should not be appraised as a preponderating influence. These percentages of bovine infection are sufficiently high to be taken cognizance of from a prophylactic standpoint. They are, indeed, surprisingly great for a city like New York, where such a large part of the milk is subjected to pasteurization. It would seem advisable from time to time, at intervals of about five years, to carry out similar investigations in our large cities, in order to obtain reliable information regarding the prevalence of bovine tuberculosis, and to furnish a sound basis for stricter sanitary ordinances, should the high morbidity and mortality not diminish.

INFECTION FROM LATENT CARRIERS

Opinion is still divided as to exactly how the majority of infants and children become infected with tuberculosis; how it comes to pass, for example, that 43 per cent. of these children between 3 and 5 years of age gave evidence of having taken in tubercle bacilli. In many instances we are able to trace the source of infection of clinical tuberculosis in infants, of tuberculous meningitis or other active forms of the disease. In the majority of cases the mother is responsible, the father and other members of the household transmitting the disease less frequently. In a considerable number of instances, however, it is impossible, probe as we may, to ascertain the source of infection. This is true in a far greater measure when the infection is very mild and we are dealing with an older child in apparent health, who merely reacts to one or more tests with tuberculin. In my opinion, these children are infected in a manner not essentially different from those in whom the source is traceable, the difference being merely that in the former the focus is unrecognized—that they have been in contact with communicable but undiagnosed tuberculosis. There is a clinical basis for this point of view. It is within the experience of most physicians that persons in apparently normal health may show tubercle bacilli in the sputum. This has come to light even in relation to physicians in the course of a casual examination of their own sputum. It seems probable that there are many individuals who from time to time excrete tubercle bacilli, who are occasional shedders, if we may use this term, of tubercle bacilli, and who are responsible for the large numbers of reactors encountered among children tested with tuberculin. It would be of interest and importance, to put this question to a test, to examine the sputum of individuals who from time to time suffer from an apparently negligible cough, making tests daily for a period of months, and using not only stained films, but the more searching method of fluidification and centrifugation of a large quantity of sputum. If this explanation is the correct one, it brings out the immensity of the tuberculosis problem, and, at first glance, may seem to offer a most disheartening outlook. We must remember, however, that, in general, persons with a positive sputum are dangerous in proportion to the number of bacilli which they excrete and only for the period of time during which they are "positive cases." It does, however, emphasize the fact that, where there are young children, we should watch more carefully for communicable tuberculosis among the adults of the household who suffer from apparently harmless catarrhal respiratory infections.

TABLE 3.—DEATHS FROM TUBERCULOSIS (ALL FORMS) IN THREE LARGE CITIES ACCORDING TO SEX AND YEARLY PERIODS *

Years	New York 1916		New York 1917		Chicago, 1917		Philadelphia, 1917		Total		Grand Total
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
5	22	25	23	29	7	9	4	4	56	67	123
6	22	17	16	14	9	9	11	8	58	48	106
7	16	13	24	13	9	6	9	4	58	36	94
8	17	14	19	13	3	6	3	9	42	42	84
9	12	9	10	20	3	2	5	1	28	32	60
10	9	17	10	9	1	4	4	5	24	35	59
11	12	10	9	9	5	3	6	6	32	28	60
12	10	15	10	**22**	1	6	1	7	22	**50**	72
13	17	**32**	17	23	4	**11**	4	**8**	42	74	**116**
14	11	31	15	38	7	12	2	**20**	20	101	121
15	18	42	15	34	6	21	5	**18**	44	115	159
16	**28**	54	**45**	75	4	17	**14**	26	**88**	172	261
17	61	60	49	60	**15**	31	18	25	143	176	319
18	64	84	65	75	12	30	15	24	156	213	369
19	82	87	74	97	37	36	30	39	223	259	482
20	91	82	100	102	45	42	37	38	273	264	537
21	94	86	101	99	38	47	37	31	270	263	533
22	112	106	105	98	53	50	38	41	308	295	603
23	107	105	117	111	49	67	38	36	311	319	630
24	93	96	121	96	69	48	40	25	323	267	590
25	130	98	124	108	40	50	49	41	343	297	640
26	110	104	140	109	74	51	38	44	362	308	670
27	131	98	137	84	70	49	47	22	385	253	638
28	135	111	149	96	84	49	49	27	417	283	700
29	120	78	135	81	61	48	36	32	352	239	591
30	150	97	155	92	67	43	46	36	418	268	686

* This table shows that there is a marked increase in the absolute mortality from tuberculosis at about the thirteenth year of life (last column). This sudden increase corresponds to maturity, and, it will be noted, occurs in girls at 12 and in boys at 16 years of age.

SECOND ACTIVE PERIOD

As mentioned above, after the second year of life a remarkable decrease in the number of deaths from tuberculosis becomes evident; a quiescent period sets in which continues with increasing emphasis for a space of about ten years. Then follows what may be termed the second heyday of tuberculosis, a protracted period of high mortality showing no mitigation until

8. Park, W. H., and Krumwiede, C.: J. M. Res. **27**: 113, 1912.

the early forties. This marked rise is peculiar to tuberculosis, for the general death rate is, as we should expect, at its lowest ebb at this time of life. In an attempt to define more sharply the onset of this important period, we have compiled statistics showing the number of deaths from tuberculosis year by year in three of our largest cities (Table 3). This shows that the increased mortality begins rather abruptly at the thirteenth year and rapidly progresses (Table 3, last column). When we classify these figures according to sex, we note that this increment is due entirely to an increase in deaths among females; that the deaths of girls from tuberculosis increases markedly at the age of 12 years, whereas a corresponding increase in the number of deaths among boys does not take place until 16 years of age. This shows the fallibility of relying solely on quinquennial periods in tabulating statistics—the mortality of the females falls in the third quinquennium, that of the males in the fourth (Table 4). At the age of 20, for the first time after infancy, more boys die of tuberculosis than girls. A striking feature of this study of the sex factor is the uniformity in the occurrence of the increment, its variability in the three cities for 1916 and 1917 never exceeding one year. In considering these tables we

TABLE 4.—DEATHS FROM TUBERCULOSIS IN NEW YORK CITY ACCORDING TO SEX AND QUINQUENNIAL PERIODS

Age Period, Years	1916				1917				Total		Grand Total
	Pulmonary		All Forms		Pulmonary		All Forms				
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	
0- 5	54	51	371	308	67	45	403	337	895	741	1,636
5- 9	23	22	84	78	28	25	92	88	222	213	435
10-14	31	75	57	106	33	78	62	100	183	359	542
15-19	209	292	251	328	215	306	248	338	923	1,564	2,488
20-24	456	436	494	475	508	466	541	502	1,999	1,879	3,878
25-29	591	458	630	486	642	439	688	476	2,051	1,859	3,910
30-34	717	380	760	404	732	397	770	473	2,979	1,654	4,633
35-39	829	336	859	356	843	323	877	350	3,408	1,365	4,773
40-44	686	282	714	298	796	272	892	286	3,018	1,138	4,156
45-49	666	206	689	221	664	189	694	201	2,713	823	3,536

must always bear in mind that the susceptibility to infection must antedate, by at least a year, the mortality from the disease.

How are we to interpret this sudden increase of deaths from tuberculosis? The most convincing interpretation of these figures seems to be that they are governed by the onset of maturity, by the evident but little understood forces that become potent at puberty. No other explanation accounts so fittingly for the sudden and precocious alteration in the reaction of the female to tuberculosis infection, and to the later but equally significant impetus in the mortality of the male.[9]

But if we accept this explanation for the great increase of the disease at this life cycle, we must accept the premise that reinfection has its source probably from within the body and not from without; that it is an autoinfection from an old tuberculous focus. For it is evident that boys and girls are not exposed to infection at this particular age more frequently than at a younger period, when we note that deaths are comparatively few. It is still more evident that girls are not subjected to this danger four years earlier in life than boys. It may be answered that these considerations prove that maturity is an etiologic factor, but that it has merely a predisposing influence, rendering the tissues more susceptible to tubercle bacilli entering from without. But we have seen that there is a remarkable constancy in the year of increase in the mortality in the female as well as in the male, that almost without exception the mortality of the former advances sharply at the age of 12 years and that of the latter at the age of 16. If this is brought about by an intake of tubercle bacilli transmitted by contact infection, we must presuppose that these girls and boys are being infected with tuberculosis every year of their life. In no other way could this uniform periodicity be accounted for. It is more logical to regard this sudden flare up as an activation, at the time of maturity, of some lesion in the bronchial gland or in the lung, which had remained latent from early childhood.[10]

COUNTRY PREVENTORIUMS

It follows, therefore, that tuberculosis is a disease fraught with the greatest danger to child life, and is most to be feared at the extremes of this period. Such being the case, what is being done to cope with this situation, to protect our infants and adolescents? In regard to the former, the following incident is indicative: A few years ago we ascertained the number of infants in the homes of the children who were at that time at the Tuberculosis Preventorium (at Farmingdale, N. J.). This institution cares for children of tuberculous parents, and accommodates about 180 girls and boys between the ages of 4 and 14. It was found that in the 120 homes there were forty-two infants under the age of 2 years who were exposed to infection. On writing to the commissioner of charities of the city of New York acquainting him with this situation, and asking how to protect these infants, he replied, after due consideration, that there was no institution or other provision for this class of case. The hospitals would not accept them because they were not sick; the orphan asylums refused them admission because the parents were living, and the infant asylums because they were not destitute. Accordingly, we established in connection with the institution a small preventorium for infants which has been maintained for the past three years. I shall not go into the details of the working of this endeavor, as a report has recently been published of its activities.[11] It will perhaps interest the reader to learn that we have not encountered any insuperable difficulties in its administration; that mothers will part with their babies for a period of at least a year if they are told of the danger to which they are otherwise subjected, and that the infants have thrived in the institution. There are merely two points which it may be well to emphasize: The first is that to insure success the infants must be separated from their mothers early, before they have been infected, as shown by a von Pirquet test, and second, that, owing to the fact that most of the mothers died during the first year of the infant's life, there rarely has been danger of returning the baby to its dangerous environment. The instances in which the pressure to return an infant to infectious surroundings has constituted a knotty

9. It is of interest in this connection that reports of the U. S. Department of Agriculture show that of the steers and bulls retained for tuberculosis during the years 1915, 1916 and 1917, only about 7, 6.5 and 6 per cent. of the former were condemned annually against about 10, 10 and 10.75 per cent. annually of the latter. Possibly castration may account for the smaller percentage of progressive tuberculosis among the steers.

10. The fact that the soldiers develop tuberculosis generally within a month or two of their entrance into active service is probably best interpreted as the fanning into activity, through the stress of hard life, of old foci of disease.

11. Hess, A. F.: Am. Rev. Tuberc. 1: 669, 1918.

problem have been few, far fewer than we had expected.

It would seem that the best way to begin to combat this high mortality from tuberculosis would be to establish preventoriums for infants in connection with the large cities. These institutions should be situated in the country about two hours' train ride from the city.[12] They should be built with many balconies so as to provide for an outdoor life, and should be conducted by children's specialists according to the most approved methods (provided with one or more wet-nurses). The infants should be kept at the institution for at least a year. This central preventorium for infants could well serve as the administrative center for a system of boarding out of infants in the farm houses of the surrounding country, under supervision of the physician and nurses of the institution; babies who were not thriving could be returned to the precincts of the preventorium for special care and treatment. There is good reason to believe that by this means thousands of babies in the large cities, who will be infected by their parents, could be saved and grow up as healthy individuals. This question is particularly opportune and urgent at the present time, when many soldiers will return to their homes having communicable tuberculosis.

The problem of the protection of older children against tuberculosis may likewise be said not to have been seriously considered in the United States. Here and there a disjointed effort has been made to provide for a few children, but the need has not been sufficiently clear to stimulate either those active in the field of tuberculosis or others interested in problems of child welfare to map out a definite program. In France the Gaucher movement was organized in 1907 to carry out prophylaxis against tuberculosis in childhood. This organization, which has grown year by year, sends children to homes throughout the country districts of France, where they are cared for by foster parents for many years. The idea is an excellent one, and the work undoubtedly greatly benefits the children.[13] It provides, however, for children only between the ages of 3 and 13, and therefore does not embrace the two critical periods of tuberculosis. It should be supplemented by measures for the care of infants, and, it would seem, should extend the age limit of its surveillance.

One measure which I would suggest to guard against the tuberculosis of maturity is the establishment of preventoriums throughout the country similar to that at Farmingdale, N. J. Children should be sent to such institutions who are poorly developed and undernourished and give a positive tuberculin reaction. If it is true that infection at this period of life emanates from a focus within the body, then malnutrition should play a dominant rôle in the selection of the cases. These children should be kept in the country for from three to six months. If may be objected that, after a few months in the city, they will have lost the benefit of their stay in the country. Such, however, does not seem to be the case. It is difficult to estimate for how long a period children maintain the benefits gained at preventoriums or sanatoriums because the factor of growth complicates the estimation of weight. It would seem best, therefore, in judging whether they are able to hold their gain, to weigh them six months after they have left the institution, an interval so short as to render growth a negligible factor. We have found recently that more than 90 per cent. of the children who have been at the preventorium held their entire gains in weight after this interval, and that the losses in almost all cases have been slight. The children should be under surveillance for many years following their return to the city, and be sent to the preventorium for a second or third time should their nutritional condition demand it.

As the result of a study of the mortality statistics we must conclude that it is inadvisable to make the age of admission from 4 to 14 years, as the high mortality does not begin until 12 in girls and 16 in boys. In view of the great need for preventoriums it would seem wise to accept girls only from the ages of 10 to 16 and boys only from 14 to 18, in other words, two years before the onset of the high mortality. With this change in the age of admission comes the advisability of providing separate preventoriums for boys and for girls. Finally, it seems possible that some affiliation might be made with agricultural schools whereby these children could be referred to such institutions and thus trained in a permanent outdoor occupation.

This is the Children's Year. The Children's Bureau of the United States Department of Labor has inaugurated this movement in order to conserve the lives and health of children as a measure of national defense. The countries of Europe have realized as a result of the war that the protection of the lives of babies has become more than ever a patriotic duty. It would seem as if those actively interested in the propaganda of tuberculosis might properly join forces with those inaugurated by the government, and focus their efforts on the coming generation to prevent the large wastage due to preventable tuberculosis.

SUMMARY

Statistics of infant mortality that show the ratio of deaths from tuberculosis compared to other diseases do not give a true conception of the importance of tuberculosis at this period of life. To arrive at a better understanding of this problem, we must prepare figures showing the absolute number of deaths annually. We then find that in no one year do the deaths from tuberculosis exceed those of the first year of life. This great loss is due in part to the peculiar susceptibility of infants, in part to the fact that they receive an exceptionally large amount of the infective agent. The dosage is large, not only in an absolute sense, in the number of bacilli conveyed by the mother or other infected individual, but also from a relative point of view, when we consider the comparatively small size and weight of the baby. Bovine infection plays a part that is minor but not negligible. In view of the not inconsiderable mortality that has been shown to be occasioned by the bovine type of bacillus, it would be well if cultural studies of tuberculosis in infants should be carried out from time to time, in order to gain an insight into the degree to which milk employed for infant feeding is contaminated by virulent tubercle bacilli.

12. It is of distinct advantage to have an institution of this kind far enough away from the city for the items of expenditure of time and money to act as a deterrent to frequent visits on the part of mothers.

13. When we consider that tuberculosis tends to flare up at puberty and to continue to reap a high toll of deaths for many years thereafter, it is evident that statistics reporting the benefit of treatment or of hygienic measures must cover this susceptible period to be convincing and of real value. Very little is demonstrated by reports showing that children discharged from sanatoriums or preventoriums have remained well until 15 or 20 years of age. The crucial test comprises the long span of early adult life.

Following the period of infancy there is a quiescent phase in the mortality from tuberculosis, throughout which the deaths decrease year by year, although the number of infections, as shown by the tuberculin reaction, steadily increases. These infections are due probably to latent carriers, to individuals who from time to time shed tubercle bacilli. A daily examination of the sputum of a series of individuals, carried out carefully and for a period of months, might well be undertaken in order to test the validity of this hypothesis.

There is a second active phase in connection with the mortality from tuberculosis. This is commonly associated with the third quinquennium of life. If we study the deaths year by year, rather than by quinquenniums, we find that this period begins at 13 years of age, and that it is not coincident in females and in males. Among the former it sets in rather sharply at the age of 12, whereas among the boys the flare up does not manifest itself until the age of 16. This distinction was found to hold good for several large cities, and is governed probably by the onset of puberty. This uniform periodicity in the increase of deaths from tuberculosis, taking place in both girls and boys at a definite year of life, leads us to believe that the disease is due to an "autogenous reinfection" from some latent focus, rather than a fresh infection from a tuberculous individual.

Much good could be accomplished in combating tuberculosis both in infants and at puberty by providing country preventoriums in connection with the large cities. In view of the mortality incidence outlined above, it would seem advisable to change the present usage in regard to the older children and to restrict these institutions to girls from the ages of 10 to 16 and to boys from 14 to 18. In this way provision would be made for hygienic measures two years before the onset of the second period of high mortality.

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Health of Food Handlers in New York City.—New York City under its Sanitary Code has a regulation regarding the examination of food handlers, requiring them to obtain certificates of health from the health department. An analysis of the results of the examination of 1,980 of these persons, as set forth in an abstract in the *American Journal of Public Health*, shows that 1,590 of these were males and 390 females; 80.2 per cent. were in the age period between 20 and 44 years; 81 per cent. were restaurant and hotel workers and 16 per cent. were confectioners and bakers. Of the 81 per cent., 44.2 per cent. were waiters and waitresses, 19.6 cooks and 9.1 per cent. dishwashers and kitchen employees. The examination of these cases was very thorough. It was found that 32.1 per cent. of the males and 13.3 per cent. of the females were free from disease or any other condition worthy of mention. But among the diseases and defects found were 10 cases of active tuberculosis, 3 arrested cases and 12 suspected cases; 19 cases of active syphilis and 32 of suspected syphilis, and 6 cases of gonorrhea. The prevalence of this latter disease among women was not determined. There were 370 cases of anemia, 112 cases showing eye diseases, 124 cases of heart disease, 64 of diseases of the arteries, 237 cases of varicose veins, 110 cases of colds and rhinitis, 25 cases of chronic bronchitis, 104 cases of pulmonary emphysema, 208 cases of pyorrhea alveolaris, 288 cases of dental caries, 202 cases of pharyngitis, 62 cases of hernia and 133 cases of flatfoot. Bakers and cooks seem to suffer particularly from cardiovascular disease, anemia, flatfoot and respiratory disorders.

THE EFFECT OF HEAT ON THE SPORES OF BACILLUS BOTULINUS

ITS BEARING ON HOME CANNING METHODS: PART I*

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There are four methods commonly used in the home for canning fruit and vegetables. They are:

1. The hot pack method, in which the fruit and vegetables are cooked in the open kettle till done and then sealed in clean jars while hot.
2. The cold pack method, in which the fruit or vegetables are first blanched, then packed in jars and the jars put into water and boiled for one continuous period of from one and a half to five hours.
3. Intermittent or fractional sterilization, the fruit or vegetables being packed cold in the jars and the jars placed in water and boiled from fifteen to sixty minutes on each of three successive days.
4. Pressure canning, in which the filled jars are sterilized with steam under pressure.

Of these methods the first two are probably more generally used because they require no special apparatus as for pressure canning, and the work is completed in one day, whereas the fractional method requires three days.

The latest books on bacteriology state that the spores of *B. botulinus* are easily killed, a temperature of 80 C. (176 F.) for sixty minutes being sufficient. If this statement were true of all strains of *B. botulinus*, any one of the four methods of canning mentioned would be amply sufficient to sterilize fruit or vegetables contaminated with *B. botulinus*, and development of toxin in jars would indicate gross carelessness on the part of the cook.

Seven cases of botulism were investigated by Dr. E. C. Dickson of Leland Stanford Junior University School of Medicine during the winter of 1917 and 1918, and in four of these cases I succeeded in isolating *Bacillus botulinus*, either from dead chickens, sick hogs or directly from the cans of fruit or vegetables. In two of these cases, vegetables were canned by the cold pack (one period) method. One of the cooks stated positively that she had kept the filled jars in a covered boiler with the water actively boiling for three hours. She did not, however, blanch the peas before placing them in the jars. In the third case of poisoning the beans were canned by the fractional method, and in the fourth case, in which the poisoning of eight persons followed the eating of canned apricots, the fruit was cooked in the open kettle and sealed, while hot, in the jars. As the cook was one of the first victims, there are no data as to just how long the fruit was cooked.

In view of these conflicting data, a series of experiments were begun to determine the effect of heat on the spores of *B. botulinus*. The work is being carried on under a special grant from the State Council of Defense of California, and has been performed in the Laboratory of Bacteriology and Immunity of Leland Stanford Junior University, where Dr. W. H Manwaring has generously facilitated the work in every way.

There are in this laboratory ten strains of *B. botulinus*. Strains I and II came from the Museum of

* Report of the Botulism Research of the State Council of Defense of California, July, 1918.

Natural History, New York, and Columbia University, respectively, and I do not know where they were isolated. They produce very weak toxin and their colony formation is not uniform. Strains III, IV and V were isolated by Dr. Dickson from cases of botulism occurring in California and Oregon in 1916 and 1917. Strains III and IV produce a strong toxin and characteristic colonies. Strain V produces a weak toxin and its colonies are not uniform. Strain VI was isolated from cheese in Massachusetts. It produces strong toxin but its colony picture is not uniform. Strains VII, VIII, IX and X were isolated by myself during the past winter from the cases investigated by Dr. Dickson.[1] Strain VII came from Seattle, and the other three from California. They all produce strong toxin and form characteristic colonies. By means of toxin-antitoxin tests it has been shown that Strains III, IV, VII and IX belong to one homologous group, and that Strains VI, VIII and X belong to another. The relationship of Strains I, II and V has not been determined, as the toxin produced is very weak.

Spores develop most rapidly and abundantly in a culture medium made of sheep brains, cooked slightly with a little water and squeezed through cheese cloth. The medium is oil stratified in the tubes. In these cultures the spores are present in the fluid portion and also embedded in the brain tissue. In broth cultures, spores are formed very slowly, and for this reason only two experiments have as yet been performed with broth spores.

Each culture was examined in a smear, stained by Gram's method, and only those cultures were used that were found to contain free spores. Cultures showing only terminal spores were not used.

TECHNIC

Spore Mixtures.—For the broth spore experiments (Tables 1 and 2), about 1 c.c. of the sediment from the bottom of the broth culture was pipetted off with a sterile pipet into a sterile test tube and the volume made up to about 6 c.c. with sterile salt solution.

For the Arnold sterilizer experiment (Table 4), about 2 c.c. of the brain culture were pipetted off with a sterile pipet into a sterile test tube and diluted with about 10 c.c. of sterile salt solution. When the material was boiled in an open beaker (Table 3), about 10 c.c. of the brain culture were mixed in a sterile beaker with about 50 c.c. of sterile salt solution, and loss by evaporation was made up by the addition from time to time of hot sterile distilled water so that the boiling did not stop or the concentration of the fluid change materially. For the autoclave experiments (Table 5) about 0.5 c.c. of a brain culture was placed in a sterile test tube. No salt solution was added.

Apparatus.—Water Bath: A deep pot of water was used for the water bath with a cover having holes through which the tubes were pushed down into the water. The level of the water in the bath was always well above the level of the spore mixture in the tubes.

Arnold Sterilizer: The tubes containing the spore mixtures were placed in a rack in a regular Arnold sterilizer with a double door. The door was necessarily opened for about three minutes during each inoculation period. This, however, was done in a very warm room.

Autoclave: This was of the horizontal type.

Inoculation.—Inoculations were made from the heated material at definite intervals as specified in the respective tables. In all but the autoclave and part of the beaker experiments the inoculations were made by means of small sterile pipets. A separate pipet was used for each inoculation. The amount of material transferred was about 0.1 c.c. This amount was increased somewhat in the inoculations made after the longer periods of heating. For the inoculations of the autoclaved spores, a platinum loop about one-fourth inch in diameter was used. The center of the loop was filled in with a coil of platinum wire to make a scoop so that a very rich inoculation was made. An ordinary platinum loop was used to make inoculations from the foam in the experiment of boiling the spores in an open beaker.

Mediums.—All inoculations were made into tubes of deep infusion or peptic digest agar, 2 per cent. glucose. The agar was boiled for twenty minutes and cooled to 47 C., at which temperature the tubes were inoculated. They were then at once thoroughly shaken and solidified in cold water. They were capped with a mixture of paraffin, beeswax and zinc oxid.

Incubation.—The cultures were incubated in an incubator which varied between 25 and 28 C.

Observation.—The cultures were observed each day for anaerobic growth and gas production. When growth appeared the cultures were examined under the dissecting microscope to determine whether the colonies were characteristic of the given strain of *B. botulinus*. This was done in order to rule out possible contamination with other organisms.

EXPERIMENTS AND RESULTS

Two experiments were performed in which spores from broth cultures were used. The spores were heated in a water bath. In the first experiment (Table 1) the temperature of the water bath was approximately at 80 C., and the temperature inside the test tubes was maintained between 79.5 and 81 C. during the two hours. In the second (Table 2) the water in the bath was kept actively boiling and the temperature in the test tubes was maintained at 100 C. throughout.

TABLE 1.—RESULTS OF EXPOSING FREE SPORES FROM BROTH CULTURES OF B. BOTULINUS TO A TEMPERATURE OF 80 C. IN A WATER BATH; CULTURES INCUBATED FOR SIX WEEKS*

Length of Exposure at Time of Inoculation, Minutes	Temperature in Test Tube at Time of Inoculation, C.	Strains					
		I	III	V	VI	VII	IX
Control unheated	....	⊕ 1 d	+ 1 d ⊕ 2 d	⊕ 1 d	+ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d
5	80.5	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	⊕ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d
10	80	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	+ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d
15	80.5	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	+ 1 d ⊕ 2 d	+ 1 d ⊕ 2 d
20	79.5	+ 1 d ⊕ 2 d	....	⊕ 1 d	⊕ 1 d	⊕ 1 d	+ 1 d ⊕ 2 d
30	81	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	+ 1 d ⊕ 2 d	⊕ 1 d
40	80.5	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	⊕ 2 d	⊕ 1 d
60	80	⊕ 2 d	....	⊕ 2 d	⊕ 2 d	⊕ 4 d	⊕ 2 d
90	80	⊕ 2 d	....	⊕ 2 d	⊕ 2 d	⊕ 3 d	⊕ 2 d
120	80	⊕ 1 d	....	⊕ 1 d	⊕ 1 d	⊕ 3 d	⊕ 3 d

* In the tables, + indicates growth; ⊕ indicates growth and gas. Arabic numerals followed by "d" indicate the number of days of incubation before growth and gas appeared in the agar cultures.

Normal cultures of *B. botulinus* in agar grow and produce gas in from twenty-four to forty-eight hours, the more thickly seeded cultures showing up more quickly than thinly seeded ones. In Table 1 it will be observed that the broth spores of five strains survived a temperature of 80 C. for two hours and that 90 per cent. of the cultures developed in from twenty-four to forty-eight hours, while the others showed up

1. Dr. E. C. Dickson has a report of these cases in process of publication.

on the third or fourth day. It is evident, therefore, that the spores were practically uninjured by exposure to a temperature of 80 C. for two hours. Of the broth spores heated to 100 C. (Table 2), one strain survived after an exposure of fifteen minutes, another after twenty minutes, a third after thirty minutes and a fourth after sixty minutes.. The control cultures and some of those inoculated after five and ten minutes' exposure developed in normal time. But the development of the other cultures was retarded. The incubation period was increased in direct proportion to the length of time the spores were exposed to the heat.

TABLE 2.—RESULTS OF EXPOSING FREE SPORES FROM BROTH CULTURES OF B. BOTULINUS TO A TEMPERATURE OF 100 C. IN A WATER BATH; CULTURES INCUBATED FOR THREE MONTHS

Length of Exposure at Time of Inoculation, Minutes	Temperature in Test Tube at Time of Inoculation, C.	Strains			
		V	VI	VII	IX
Control unheated	...	+ 1 d ⊕ 3 d	+ 1 d ⊕ 3 d	+ 1 d ⊕ 3 d	+ 1 d ⊕ 3 d
5	100	⊕ 1 d	⊕ 1 d	+ 6 d ⊕10 d	+ 3 d ⊕ 8 d
10	100	+ 1 d ⊕ 2 d	⊕ 4 d	+10 d ⊕15 d	⊕ 5 d
15	100	+ 5 d ⊕ 6 d	+10 d ⊕19 d	.....	+ 5 d ⊕ 8 d
20	100	⊕ 8 d	.....	⊕26 d	⊕ 6 d
30	100	+10 d ⊕19 d	.....	.....	+ 6 d ⊕ 8 d
40	100	.....	.....	.....	+ 8 d ⊕12 d
60	100	.....	.....	.....	+15 d ⊕17 d
90	...	.....	.....	.....	.....
120	...	.....	.....	.....	.....

These two experiments parallel two which were made by Dr. E. C. Dickson[2] and myself last spring with spores from brain cultures. It was found at that time that spores from brain cultures of six strains survived a temperature of 80 C. for three hours and that growth appeared after a practically normal incubation period, and also that spores from brain cultures of five strains, exposed to a temperature of 100 C. for two hours, survived for the entire two hours, while the sixth strain survived for one and one-fourth hours. The negative cultures were not kept more than three weeks. The incubation period of the spores following exposure to 100 C. was increased in direct proportion to the length of time of exposure. Comparing these data with those in Table 2, it is evident that broth spores are somewhat less resistant than those grown in brain mediums, but that they are more resistant than has been hitherto reported.

In all experiments in which spores were exposed to temperatures of 100 C. or over, the subsequent development of the heated spores was more or less retarded (Tables 2, 3, 4 and 5). The longest period of incubation recorded in these charts is fifty-three days (Table 5, Strain X).

The cultures remain apparently sterile for days. No growth is visible even with the use of a dissecting microscope. Then suddenly, within a twenty-four to forty-eight hour period, normal growth and gas production take place. There is a good deal of variation in the resistance of the spores of the different strains to heat and the amount of growth inhibition caused by exposure for any given time. For any one strain, however, the amount of inhibition varies directly with the length of exposure. An examination of the incubation periods noted for each of the cultures in the accompanying tables shows that there are very few exceptions to this rule. Several occur in Table 1; but, as I have already stated, all the cultures in this experiment developed in practically normal time, and the variations that occurred are due to difference in the thickness of seeding rather than to the effect of the heat. In Table 3, Strain VIII, there is a very decided break in the sequence between the spores heated for 150 minutes and those heated for 180 and 210 minutes. But, as will be explained more fully later, the early development of the 180 and 210 minute cultures was probably due to the accidental admixture of foam from the side of the beaker which had not been subjected to the same degree of heat as the liquid at the bottom.

The recognition of the fact that the incubation period of the spores of *B. botulinus* is very much lengthened following exposure to temperatures of 100 C. and over is very important. It means that in testing for the thermal death point all cultures of heated spores that do not show any growth must be incubated for months before they are finally reported sterile. Therefore, whenever negative results are noted in the accompanying tables it must be understood that they represent incomplete data and do not indicate the thermal death point of the spores, for none of the cultures have been incubated for more than three months at the time of this writing.

TABLE 3.—FREE SPORES FROM BRAIN CULTURES OF B. BOTULINUS BOILED IN A BEAKER OVER A FREE FLAME

Strain IV		Length of Boiling	Strain VI		Strain VIII	
Length of Boiling	Foam and Liquid		Liquid	Foam from Side of Beaker	Liquid	Foam on Surface of Liquid
Control unheated	⊕ 1 d	Control unheated	⊕ 2 d	No cultures	⊕ 2 d	No cultures
Just boiling after 4 min. over flame	⊕ 1 d	Just boiling after 5 min. over flame	⊕ 2 d	No cultures	+ 2 d ⊕ 4 d	No cultures
Boiled 2 minutes	⊕ 1 d	Boiled 5 minutes	⊕ 2 d	⊕ 2 d	+ 2 d ⊕ 4 d	No cultures
5 minutes	⊕ 1 d	10 minutes	⊕ 2 d	⊕ 2 d	+ 5 d ⊕ 6 d	No cultures
10 minutes	⊕ 1 d	15 minutes	⊕ 2 d	⊕ 2 d	+ 4 d ⊕ 6 d	No cultures
20 minutes	⊕ 2 d	20 minutes	⊕ 2 d	⊕ 2 d	+ 4 d ⊕ 6 d	No cultures
30 minutes	⊕ 2 d	30 minutes	⊕ 2 d	⊕ 2 d	⊕ 4 d	⊕ 4 d
60 minutes	+ 2 d ⊕ 3 d	60 minutes	+ 2 d ⊕ 3 d	⊕ 2 d	+ 4 d ⊕ 7 d	No cultures
90 minutes	⊕ 1 d	90 minutes	+ 2 d ⊕ 3 d	⊕ 2 d	⊕ 18 d	⊕ 6 d
		120 minutes	+ 2 d ⊕ 3 d	⊕ 2 d	⊕ 18 d	No cultures
		150 minutes	+ 2 d ⊕ 3 d	⊕ 2 d	⊕ 18 d	No cultures
		180 minutes	⊕ 3 d	⊕ 2 d	⊕ 5 d	+ 18 d ⊕ 20 d
		210 minutes	No cult.	No cultures	+ 8 d ⊕ 11 d	⊕ 4 d *

* Foam from side of beaker.

2. Dr. Dickson has a report of these experiments in process of publication.

It is also very doubtful whether fractional sterilization on three successive days could sterilize spores whose development is so inhibited by exposure to heat. Even exposure for fifteen minutes to a temperature of 100 C. will inhibit certain spores so that they will not develop until the fourth to the tenth day. Two experiments have been performed to test fractional sterilization. In both cases, spores from brain cultures were used and the spores were exposed to a temperature of 100 C. for one hour on each day. In the first experiment, two strains were used, and were heated on three successive days. Both strains survived after the third day's heating. The second time, six strains were tested, and they were sterilized on three successive days and again on the eighth day. Five strains survived the fourth period of heating on the eighth day. The other strain survived after the first period of heating, but so far the later cultures show no growth. The technic of these experiments was not, however, entirely satisfactory, and for that reason a detailed report of them will be reserved until there are more data.

TABLE 4.—RESULTS OF HEATING FREE SPORES FROM BRAIN CULTURES OF B. BOTULINUS IN THE ARNOLD STERILIZER; CULTURES HAVE BEEN INCUBATED FOR THREE MONTHS

Length of Exposure	Strains								
	I	II	III	IV	V	VI	VII	VIII	IX
30 min.	⊕ 4 d	+ 3 d ⊕ 4 d	.....	+ 3 d ⊕ 4 d	⊕ 4 d	⊕ 4 d	+ 4 d ⊕ 6 d	⊕ 3 d	⊕ 3 d
60 min.	.....	⊕ 8 d	.....	.....	⊕ 8 d	.....	+ 6 d ⊕ 8 d	⊕ 4 d	⊕ 4 d
90 min.	.....	⊕ 6 d	.....	.....	⊕ 10 d	.....	+ 6 d ⊕ 8 d	⊕ 4 d	⊕ 4 d
2 hrs.	.....	+ 13 d ⊕ 18 d	.....	.....	⊕ 13 d	.....	⊕ 8 d	+ 4 d ⊕ 6 d	+ 4 d ⊕ 6 d
2½ hrs.	.....	.....	.....	.....	.....	.....	⊕ 10 d	⊕ 6 d	+ 6 d ⊕ 8 d
3 hrs.	.....	.....	.....	.....	.....	.....	⊕ 16 d	+ 11 d ⊕ 12 d	⊕ 8 d
4 hrs.	.....	.....	.....	.....	.....	.....	.....	+ 18 d ⊕ 20 d	+ 17 d ⊕ 18 d
5 hrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....
6 hrs.	.....	.....	.....	.....	.....	.....	.....	.....	.....

It has been asserted that the blanching of the fruit and vegetables for five minutes in boiling water, as recommended in the cold pack (one period) method of canning, helps to sterilize the material. Also, many housewives can their fruit and vegetables by boiling them in an open kettle and packing them, hot, into clean jars. To test the reliability of these methods for *B. botulinus* spores from brain cultures of three strains were boiled in an open beaker (Table 3). Strain IV was boiled for ninety minutes, Strain VI for three hours, and Strain VIII for three and one-half hours. It was found that as soon as the brain mixture began to boil, a thick foamy scum formed on the surface of the mixture. In a few minutes this broke, leaving a clear portion in the center. For Strain IV, samples of both foam and liquid were taken each time. For Strains VI and VIII, duplicate cultures were made of the liquid and the foam. The foam inoculations of Strain VI were made from the foam adhering to the side of the beaker. For Strain VIII, the foam was taken from the surface of the fluid, except for the 210 minute inoculation, which was made from foam adhering to the side of the beaker.

Strain IV was uninjured by boiling for ninety minutes. Strain VI was uninjured by boiling for three hours, and Strain VIII survived for three and one-half hours, although the development of the spores was much retarded. The four samples of foam from Strain VIII show that the spores in the foam that adhered to the side of the beaker were not subjected to so much heat as those on the surface of the liquid, since the spores in the foam that was taken from the side of the beaker after 210 minutes developed much more quickly than those in the foam taken from the surface of the liquid after ninety and 180 minutes. The comparatively early development of the cultures made from the liquid after 180 minutes' and 210 minutes' boiling is probably due to the accidental admixture of some of the material from the side of the beaker at the time when hot water was added to make up loss by evaporation.

Blanching, therefore, cannot be relied on to kill or even materially injure spores of resistant strains of *B. botulinus*. Its value is as a cleansing agent. And to be effective it should be done before the fruit or vegetables are cut, for spores lodged on the skin may be crushed by the cutting process into the pulp, where they would be protected. The method of canning by boiling in an open kettle and then packing, hot, in the jars and sealing cannot be relied on to sterilize material contaminated with hardy strains of *B. botulinus* unless the boiling be continued for a good deal over four hours. A scum of foam always forms on the surface of boiling fruit or vegetables, and this may contain viable spores for a very long time.

Nine strains were tested in the Arnold sterilizer (Table 4) and ten in the autoclave (Table 5). The spores were obtained from the same set of brain cultures. A set of transplants in agar were made and incubated in order to test out the purity of the cultures.

TABLE 5.—RESULTS OF STERILIZING FREE SPORES FROM BRAIN CULTURES OF B. BOTULINUS IN THE AUTOCLAVE; CULTURES HAVE BEEN INCUBATED FOR THREE MONTHS

Pressure and Time	Time Required for Pressure to Rise, Min.	Time Required for Pressure to Fall, Min.	Strains									
			I	II	III	IV	V	VI	VII	VIII	IX	X
5 lbs.												
5 min.	5	6	⊕1d	+1d ⊕6d	...	+1d ⊕2d	+1d ⊕2d	+1d ⊕4d	⊕4d	⊕8d	⊕8d	⊕8d
10 min.	4½	5	...	...	...	...	...	⊕16d	...	+12d ⊕14d	⊕12d	⊕12d
20 min.	5	4½										
10 lbs.												
5 min.	12	10	...	...	...	...	...	.....	...	.....	.....	⊕16d
10 min.	12½	10										
20 min.	10	13	...	...	...	...	...	.....	...	.....	.....	⊕60d
15 lbs.												
5 min.	22½	13										
10 min.	18	16	...	...	...	...	...	.....	...	.....	.....	⊕63d
20 min.	8½	12½										

As these showed typical growth characteristics, no special controls were made for either the Arnold or the autoclave series.

The cultures of Tables 4 and 5 have been incubated for three months. More than half of the cultures are still negative, and none have developed since the fifty-third day. These tables, therefore, represent something approximating the thermal death point of the spores, though some further development may take place.

Spores of Strains VIII and IX survived in the Arnold sterilizer at a temperature of 100 C. for four hours. Therefore, one long period of heating, such as is recommended in the cold pack method of canning, is not a reliable method of killing spores of *B. botulinus*. The internal temperature of jars of fruit and vegetables does not reach 100 C. for about an hour after the surrounding water begins to boil. For these reasons even a period of five hours in boiling water would not sterilize the contents of jars, contaminated with spores of the more highly resistant strains of *B. botulinus*.

A month ago I received a report from a woman who canned a number of jars of string beans a year ago. Nearly the whole pack spoiled in the course of a few weeks. She stated that the beans were cut in pieces, washed carefully in water, packed in the jars, and the jars put in a boiler of cold water, the level of the water being up to the necks of the jars. The water was then brought to a boil and kept boiling for four and one-half hours. Whether any of the spoilage was due to *B. botulinus* is, of course, not known.

The data thus far obtained from the autoclaved spores show that a pressure of 15 pounds for a period of ten minutes will not kill all spores of *B. botulinus*.

There is apparently some variation in resistance to heat between spores of different cultures of the same strain. Strains I, III, IV and VI seem to be less resistant sometimes than at other times. The age of the cultures used, however, varied a good deal, because spores form more quickly in some cultures than in others. Strains VII, VIII, IX and X give more nearly uniform results. Strains VIII, IX and X, which are the most recently isolated strains, are the most highly resistant to heat.

CONCLUSIONS

1. Free spores of *B. botulinus*, grown in either broth or brain cultures, are highly resistant to heat.

2. Spores grown in brain cultures are more resistant than spores grown in broth cultures.

3. Exposure of the spores to a temperature of 100 C. or more inhibits the development of the spores of *B. botulinus* so that the incubation period is very much increased.

4. The method of canning by boiling the fruit or vegetables in an open kettle and sealing in clean jars cannot be relied on to sterilize material that is contaminated with spores of the more resistant strains of *B. botulinus*, since spores of *B. botulinus* will survive in boiling liquid for three and one-half hours; and in the foam that gathers on the side of the kettle they may live for a much longer period.

5. The sterilizing processes of the cold pack (one period) method are not sufficient to kill spores of *B. botulinus*. Blanching in boiling water for five minutes is effective as a cleansing agent, but it does not materially injure spores of resistant strains of *B. botulinus*. One period of heating in boiling water for five hours or less will not sterilize the contents of jars if they are contaminated with the more resistant spores of *B. botulinus*.

6. Fractional sterilization on three successive days is of doubtful value because, after exposure to a temperature of 100 C. for from fifteen to sixty minutes, the germination of the spores is retarded so that they do not develop before the third sterilization period.

7. Pressure canning is the only method of sterilization that at present can be considered safe. But a pressure of 5, 10 or 15 pounds for ten minutes will not kill the more resistant spores of *B. botulinus*. Therefore a comparatively long sterilization period must be used.

8. With our present knowledge, the best way to guard against spoilage of canned goods due to *B. botulinus* is to prevent spores of this organism from entering the jars. The source of contamination is not at present known.[3] It is quite certain that the organism is not present under the skin of perfectly sound fruit and vegetables that are not overripe. Therefore, fruit and vegetables of this sort should be used. Bruised and partially spoiled material, if it is fit to use at all, should be consumed at once and not stored for future use. The fruit and vegetables should be thoroughly cleaned before they are peeled or cut in order that no foreign matter may be crushed into the pulp where it would be protected. It is possible that the spores of *B. botulinus* get into the jars from some source in the kitchen. For this reason it is essential that the hands and all utensils be made as clean as possible and that flies be eliminated. The use of sound fruit and clean methods of handling are the most important factors in canning, so far as *B. botulinus* is concerned, because the sterilization processes in common use will not kill all the spores.

9. It is important that housewives be warned of the danger of *B. botulinus* spoilage so that they may examine every jar carefully when it is opened for table use. The contents of the jar must not be tasted to "see if it is spoiled." The smallest taste will be fatal if the toxin is strong. There are three signs of spoilage from *B. botulinus*, any one of which is sufficient to condemn the jar. These are:

(*a*) Gas bubbles in the jars, the tops of the jars blown, and a squirt of liquid as the top is unscrewed.

(*b*) An odor somewhat resembling rancid cheese.

(*c*) A mushy or disintegrated appearance of the solid parts of the contents of the jars.

10. The toxin that *B. botulinus* produces after several weeks or months growth in a sealed jar may be entirely destroyed by boiling for five minutes, although the spores of *B. botulinus* are not killed by this treatment. It is the toxin and not the spores that produces illness, for the bacilli do not produce toxin when taken into the body. Therefore, any canned goods that are in the least suspicious should be emptied into a kettle and boiled for five minutes. They can then be eaten without danger.

11. Since *B. botulinus* produces toxin only in material that has been sealed in an air-tight container for a week or more, and since it produces no toxin in the human body, there is no danger of botulism from uncooked fruit or vegetables or from those freshly cooked.

3. I am collecting material from places where cases of botulism occurred during the past winter in an effort to secure data as to the source of the contamination.

The Lacteal Goddess.—If civilized peoples were to lapse into the worship of animals, the cow would certainly be their chosen goddess. What a fountain of blessing is the cow! She is the mother of beef, the source of butter, the original cause of cheese, to say nothing of shoehorns, hair combs and upper leathers. A gentle, amiable, ever-yielding creature, who has no joy in her family affairs that she does not share with man. We rob her of her children, that we may rob her thereafter of her milk; and we only care for her when the robbery may be perpetrated.—Charles Dickens.

OUTBREAK OF MENINGITIS AT NORFOLK, VA.*

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The conditions which influence the spread of contagious diseases are so numerous that it is impracticable to enumerate them. There are certain important ones, however, which a study of the recorded epidemics of cerebrospinal meningitis has shown to be not only potent but almost always coexistent. These are the bringing together of large numbers of people from widely separated areas, overcrowding, and unusually rigorous weather. Last winter these conditions existed to an exaggerated extent in Norfolk. The government activities in this locality incident to the war brought to our immediate vicinity about 50,000 additional people from every state of the Union, who are engaged in all of the pursuits necessary to building and construction on a large scale. Besides these there also came large numbers of officers and enlisted men of the Army and Navy with their families. This increased our population from about 100,000 to 150,000 in a little more than six months. The problem of housing this number was serious and resulted in uncomfortable crowding. In addition, we suffered the most prolonged season of severe weather that has visited this community for forty years.

GEOGRAPHY OF THE CITY

The city and suburbs comprising the territory under consideration occupy approximately 20 square miles. One large portion (Berkley and South Norfolk) is separated from the city proper by a branch of the Elizabeth River. In this section is located St. Helena, the naval training station. Six and one-half miles to the northwest of the city is the new Hampton Roads naval base, while between this point and the city is the new Bush Bluff Army base. Across the river to the south lies the city of Portsmouth, where are situated the Naval Hospital, the receiving hospital for the Atlantic fleet, and the Norfolk Navy Yard.

STATISTICS

During the period from January 1 to May 15, 1918, there occurred in the city proper, and immediately contiguous suburbs, forty cases of cerebrospinal meningitis. The epidemiology of this outbreak is of sufficient interest to justify an analysis. The wide distribution of the cases is shown on the map. Grouping is conspicuously absent. Twenty-two of the forty patients were male and eighteen female; thirty-one were white and nine colored; nineteen were over 15 years of age and twenty-one under; twenty-two, or 55 per cent., died and eighteen, or 45 per cent., recovered.

Twenty-one patients were treated in hospitals and nineteen at home. Of the twenty-one treated in hospitals, eighteen were treated at the City Detention Hospital, one at the Naval Base Hospital and two at St. Vincent's Hospital. Of the eighteen treated at the City Detention Hospital, ten recovered.

Several cases occurred after this report was closed, all of which ended in recovery. This would alter the death rate materially.

CLINICAL FEATURES

The severity of the cases varied from mild to fulminant. Death often occurred in the latter in a few hours after the onset. As would be supposed, the predominant symptoms and those occurring with greatest uniformity were headache, vomiting and retraction. The type of headache as described by those old enough to express their symptoms was of the vertex, frontal or occipital, and while the frontal type prevailed, there were several cases in which the pain was described as distinctly bitemporal (ventricles). Vomiting was a common symptom and was projectile, rarely accompanied by any nausea. Stiffness of the neck with more or less retraction was present in every case. A number suffered from pains in the back and limbs, so pronounced in some instances that a diagnosis of grip was made. Fever was uniformly present, though charts were not kept in a sufficient number of cases to enable us to trace a typical curve.

Convulsions occurred in nine cases, in five of which the patients died. Only two adults had convulsions. Maniacal delirium was present in nine cases, in five of which the patients died. Rash, either petechial or purpuric, was observed in fourteen cases, in ten of which the patients died. In several cases described as mild, the patients developed basilar conditions and died, while in several other cases described as severe or violent, the patients recovered promptly. In the fulminant cases, the early use of serum did not appear to influence the course or termination. Intravenous injections of serum were not used except in Case 25, in which the patient was treated at the Naval Base Hospital.

The reflexes usually described as present in the various types of meningitis were exceedingly variable in their appearance. Not one sign, with the exception of retraction of the neck, was constant enough in the early stages to be of diagnostic value. Most of the patients had one or more of the signs or reflexes present at some time during the course of the disease, most of them appearing or disappearing between daily examinations. In all cases there was a definite facies, which was apparent to the practiced observer on entering the room. This consisted in a peculiar fixed stare (very slight in some cases), slight stiffness of the neck and dilated pupils. To one accustomed to seeing this form of meningitis, this facies is almost pathognomonic.

LABORATORY DIAGNOSIS

Lumbar puncture revealed *Diplococcus intracellularis* in thirty-six cases. In three cases the diagnosis was clinical only (no lumbar puncture being performed), while in one case the spinal fluid was negative, but the organisms were found in a blood smear in abundance (Case 32[1]). In two other cases also blood smears showed organisms. These demonstrations occurred early in the course of the disease, which points strongly to the disease being a bacteremia before it became localized in the membranes of the brain and cord. One case showed a mixed infection of *Diplococcus intracellularis* and *Streptococcus mucosus* (Case 2).

* Owing to lack of space, this article is abbreviated in THE JOURNAL by the omission of case reports and a map showing the distribution of cases. The complete article appears in the reprints, a copy of which may be obtained on application to the authors.

1. This case will be reported in full separately by Dr. D. P. West of Norfolk, Va., the attending physician.

TREATMENT

In every case treated with serum, commercial stock serum was used. The intraspinal method alone was employed. We regret that intravenous injections also were not given in several of the violent cases. In thirty-three cases in which serum was given, the average number of injections was five. One patient refused treatment and recovered. Another received one injection, refused further treatment and recovered. The average dose administered to adults was 30 c.c.; that to children, 15 c.c. No attempt was made to inject as much serum as the fluid removed (Sophian).

Five died without treatment, one of these because of the fulminant nature of the case, the others because of late diagnosis. One died of anaphylactic shock, five days intervening between the last two injections (Case 28). One died of intracranial pressure (Case 2). Three developed flaccid paralysis of the neck muscles while under treatment, one of whom recovered. One developed hemiplegia and recovered without permanent paralysis. So far as is known, of the patients that recovered, not one has been left with a stigma.

As to the frequency of doses, we have been guided by several factors, to wit: (1) by the improvement of symptoms; (2) by the turbidity of the fluid withdrawn (gradually clearing after first increasing cloudiness following the initial dose of serum); (3) by the bacteriology (the organisms first becoming entirely intracellular and finally disappearing), and (4) by the cytology (the cells first being polymorphonuclear, then mononuclear, and finally diminishing in number).

EPIDEMIOLOGY

The principal interest in this outbreak centered around the epidemiology. Attention has been called to the proximity of the various government activities to the city. Practically all of the civilian employees of the government live in the residential area of the two cities of Norfolk and Portsmouth. A description of this outbreak has to do only with what is geographically Norfolk; but the same conditions exist in Portsmouth. There are few residences in this section that now have no government employees lodging in them.

During the period from May 21, 1917, to June 1, 1918, the report of the Naval Hospital shows the admissions of cerebrospinal fever patients to be 131. This included admissions from St. Helena, the naval operating base, marine barracks, ships and stations, and also those cases developing in the hospital. The

FINDINGS IN FORTY CASES OF MENINGITIS

Case	Race	Sex	Age	Date of First Symptom	Symptoms	Date of First Puncture	Bacteriology of Spinal Fluid	Number of Treatments	Average Serum Injected, C.c.	Result	Presumed Source	Rash	Type
1	W	F	22	Jan. 4	Violent frontal headache and vomiting; rigidity of neck and retraction; maniacal delirium; petechial eruption	Jan. 6	Positive	5	30	Died Jan. 10	Was visited one week previout by fiancé from Camp Jackson, where meningitis was prevalent; reports showed him to be negative	Petechial	Violent
2	W	M	4 mo.	Jan. 11	Retraction of neck and general spasticity	Jan. 13	Positive; also Strep. mucosus	2	5	Died Jan. 14	Unknown.....	.....	Mild
3	C	M	?	?	Found unconscious.....	Jan. 9	Positive	0	0	Died Jan. 10	Worked at naval base.....	.....	Violent
4	W	M	37	Jan. 11	Headache, retraction and petechial rash	Jan. 15	Positive	1	30	Died Jan. 29	Worked at naval base.....	Petechial	Severe
5	W	F	9	Jan. 15	Headache, retraction, maniacal delirium, repeated convulsions	Jan. 16	Positive	6	15	Recovery	Lived near gate of St. Helena training station; was in habit of talking and playing with sailors	.....	Violent
6	W	F	3	Jan. 23	Headache, vomiting, constipation, convulsions	Jan. 25	Positive	1	15	Died Jan. 26	Father and uncle worked at naval base	.....	Violent
7	W	F	7 mo.	Jan. 27	Sudden onset; repeated convulsions	.....	.....	..	..	Died Jan. 27	Father, ensign in Navy; stationed at St. Helena; see Case 22	.....	Violent, fulminant
8	C	F	15	Jan. 22	Headache, myalgia, restlessness, retraction	Jan. 26	Positive	1	15	Died Jan. 29	Two men in same house worked at Army base	.....	Moderate
9	W	M	56	Jan. 26	Headache, vomiting, stiffness of neck, stupor	Jan. 26	Positive	6	30	Recovery	Rent collector; as such came in contact with employees at Army and Navy bases	.....	Moderate
10	W	F	5	Jan. 27	Headache, retraction, stupor	Jan. 28	Positive	6	15	Recovery	Unknown.....	.....	Moderate
11	C	F	26	Jan. 27	Headache, repeated convulsions	Jan. 29	Positive	1	30	Died Jan. 30	Husband worked at naval base	.....	Violent
12	W	M	4½	Jan. 25	Headache, vomiting, delirium, retraction, petechial eruption	Jan. 30	Positive	6	15	Recovery	Father and boarder in house worked at naval base	Petechial	Moderate
13	W	F	2	Jan. 28	Bronchitis, general rigidity, retraction	Jan. 30	1st neg., 2d pos.	6	15	Recovery	Father worked at Navy yard	.....	Moderate
14	W	M	44	Jan. 28	Chill, myalgia, projectile vomiting, delirium, retraction, purpuric rash, headache	Jan. 31	Positive	1	30	Died Jan. 31	Two men in same house worked at naval base	Purpuric	Fulminant
15	W	M	16	Feb. 1	Headache, vomiting, retraction	Feb. 3	Positive	6	30	Recovery	Father and brother-in-law worked at naval base; 11 contacts, 6 positive	.....	Mild
16	W	F	10	Feb. 2	Rigidity, retraction, repeated convulsions	Feb. 4	Positive	3	15	Died Feb. 6	Brother-in-law (living in home) sailor in U. S. N.; father worked at marine railway; 8 contacts, 1 pos.	.....	Severe
17	W	M	15	Feb. 2	Headache, general myalgia, retraction, delirium, vomiting	Feb. 6	Positive	3	15	Recovery	Father worked at marine railway	.....	Mild
18	W	M	17	Feb. 14	Headache, delirium, retraction	Feb. 15	Positive	5	40	Died Feb. 18	Father worked at Navy yard; brother, marine railway; sailors frequent visitors to home	.....	Severe
19	W	F	26	Feb. 16	Headache, sore throat, myalgia, delirium, purpuric eruption, retraction	Feb. 17	Positive	1	15	Died Feb. 17	Two men living in house worked at naval base; one of these positive culture	Purpuric	Fulminant

FINDINGS IN FORTY CASES OF MENINGITIS—Continued

Case	Race	Sex	Age	Date of First Symptom	Symptoms	Date of First Puncture	Bacteriology of Spinal Fluid	Number of Treatments	Average Serum Injected, C.c.	Result	Presumed Source	Rash	Type
20	C	F	13	Feb. 14	Headache, general rigidity, retraction	Feb. 18	Positive	6	15	Died March 27	Father worked at Army base; mother worked at restaurant patronized by sailors and soldiers	.....	Mild
21	W	M	7	Feb. 16	Headache, vomiting, retraction and general rigidity	Feb. 18	Positive	0	0	Recovery	Father and brother worked at naval base	.....	Mild
22	W	F	27	Feb. 19	Headache, retraction, myalgia	Feb. 21	Positive	23	30	Recovery	Husband ensign in U. S. N.; see Case 7	Petechial	Severe
23	C	F	13	March 1	Headache, vomiting retraction	March 1	Positive	2	15	Recovery	Father worked at naval base	.....	Mild
24	C	M	21	Feb. 28	Headache, general malaise, rigidity, retraction, delirium	March 2	Positive	9	30	Recovery	Employed at naval base; conversed with convalescent meningitis patient	.....	Mild
25	W	M	26	March 14	Headache, malaise, stupor, retraction	March 14	Positive	10	30	Died March 25	Worked at naval base.....	Petechial	Severe
26	W	M	22	March 15	Headache, vomiting, retraction	March 21	Positive	6	15	Died March 30	Worked at naval base.....	.....	Severe
27	W	F	46	Jan. 6	Headache, vomiting, myalgia, retraction, delirium, blindness	Jan. 8	Positive	6	30	Died Jan. 11	Attended wedding reception at which were present Army and Navy officers and enlisted men	Petechial	Fulminant
28	W	M	2	Jan. 16	Convulsions, vomiting, retraction, delirium, petechial and purpuric rash	Jan. 18	Positive	6	15	Died Feb. 5	Father and uncle worked at naval base	Purpuric	Violent
29	W	F	3	Jan. 14	.....	Jan. 24	Positive	10	15	Died Feb. 22	Unknown.....	Petechial	Mild
30	W	M	45	Jan. 21	Headache, myalgia, retraction, stupor, petechial rash	Jan. 24	Positive	8	30	Recovery	Worked at marine railway...	Petechial	Moderately severe
31	W	M	8	Dec. 24	Headache, vomiting, retraction, petechial rash	Jan. 28	Positive	6	15	Recovery	Unknown.....	Petechial	Mild chronic positive
32	W	M	6	Jan. 21	Repeated convulsions, purpuric rash	Jan. 21	Negative	0	0	Died Jan. 21	Unknown.....	Purpuric	Fulminant
33	W	M	6	May 17	Vomiting, abdominal pain, retraction	May 18	Positive	5	15	Recovery	Boarder in same home; worked at naval base	.....	Mild
34	C	M	10	April 7	Headache, retraction.....	April 8	Positive	4	15	Recovery	Unknown.....	.....	Mild
35	W	M	1½	April 7	General indisposition, repeated convulsions, retraction	April 9	Positive	3	10	Recovery	Father worked at shipyard and came in contact with men from naval base	.....	Mild
36	W	F	7	April 11	Headache, convulsions. tonsils red, cervical adenitis and abdominal tenderness	April 12	1st neg. 2d pos.	6	15	Recovery	Father worked at naval base	.....	Severe
37	W	M	18	April 1	Headache, retraction.....	April 6	1st neg. 2d pos. April 16	1	15	Recovery	Patient and father worked at naval base	.....	Mild
38	C	F	53	March 24	Maniacal delirium, retraction, general rigidity, moribund when seen	0	.....	0	0	Died March 26	Unknown.....	.....	Violent
39	W	F	35	April 4	Bronchitis, maniacal delirium, retraction, purpuric rash	0	.....	0	0	Died April 6	Unknown.....	Purpuric	Fulminant
40	W	M	8 mo.	April 6	Muscular twitching, retraction, purpuric rash	April 9	Positive	1	15	Died April 9	Members of family attended dance at which were Army and Navy enlisted men	Purpuric	Violent

number of carriers is not stated. From January 1 to May 1, twenty-nine patients were cared for at the hospital at the Hampton Roads naval operating base, and 300 carriers were isolated. Men from all these stations come to the city, and mingle freely with the population.

At the beginning of the outbreak, the laboratory of the Norfolk City Board of Health was not in a position to do the nose and throat culture work, the bacteriologist having recently been drafted. Later on the United States Public Health Service sent Dr. George Lake to assist in this work. At first, culture medium was hard to secure, and so even this work was imperfectly done for a time. Nevertheless, a large number of cultures were made in the houses where cases occurred, with varying results. A number of positive cultures were obtained, but a large number of those from persons suspected of having carried the disease were negative. The facts in the case will be stated, however, for what they are worth. They are highly suggestive. The accompanying table suggests the presumed source better than we can describe it. Of course, nothing absolutely conclusive can be deduced from this study, except in cases in which positive cultures were secured; yet, under the circumstances, we are forced to the conclusion that from all these various government activities there were many carriers that were never detected.

In twenty-six cases there was an apparently definite connection with either the naval base or the navy yard. In one instance the patient's mother was a waitress in a restaurant patronized largely by enlisted men. In one case the patient attended a reception and came in contact with Navy men. In the last instance the connection was very indirect but suggestive. Members of the patient's family danced with enlisted men at a reception. No cultures were made in this case.

It is quite apparent that this outbreak originated from without. There were no centers of infection in the city. With the single exception of mother and child, there was no connection whatever between the patients, none of them even knowing each other.

CLINICAL OBSERVATIONS

1. We treated only the patients under 15 years of age, but observed most of the others.

2. Intensive treatment should be conducted early.

3. Since the disease probably starts as a bacteremia, we think it advisable, at least in the early stages, to use serum intravenously as well as intraspinally.

4. Patients that are not well clinically after seven days' treatment rarely recover ultimately.

5. It is rarely necessary to give as much serum in the spine as the fluid withdrawn, 30 c.c. being a good average adult dose, and 15 c.c. a good child's dose.

6. Prolonged serum treatment frequently keeps the temperature raised without doing good.

REPORT OF CASES

CASE 1.—*History.*—D. C., white woman, aged 22, was taken sick in the evening of January 4 with violent frontal headache and vomiting, followed within twenty-four hours by maniacal delirium, rigidity of the neck, marked retraction and diffused petechial rash. Lumbar puncture was done January 6; the fluid was cloudy and positive for meningococci. Treatment was begun at once, and she was given a daily dose of 30 c.c. of antimeningococcus serum on five consecutive days. There was no improvement, and death occurred, January 10, without the patient having regained consciousness.

Source.—The patient had been visited five days previous to the onset of illness by her fiancé, a young soldier from Camp Jackson, where there had been a number of cases of meningitis. Culture from the throat of this soldier was negative.

CASE 2.—*History.*—Baby C., white boy, aged 4 months, was convalescing from bronchopneumonia of several weeks' duration, when, Janary 11, the attending physician detected stiffness of the neck. The child was seen in consultation at 8 p. m., January 13, at which time there was a marked degree of spasticity. Lumbar puncture was done immediately; 15 c.c. of slightly cloudy fluid were removed, and 6 c.c. of antimeningococcus serum administered. Examination of the fluid revealed a mixed infection of meningococci and *Streptococcus mucosus.*

On the morning of January 14, the patient seemed better. A second puncture was done, but not more than 2 c.c. of turbid fluid were obtained. On account of the urgency of the case, and in spite of the small amount of fluid withdrawn, the consultant (one of the authors) decided that more serum was indicated. At this time some difficulty was experienced in getting more than 2 c.c. of serum to flow into the canal by gravity, and only with the aid of slight pressure, by means of a rubber bulb, was it possible to introduce more than 4 c.c. The patient did well for ten minutes after the administration of the serum; he then went into a state of collapse suddenly and became cyanotic, with labored respiration. An immediate attempt was made to relieve the intracranial pressure, but death occurred before this was successful.

Source.—We were unable to trace any source of infection. Cultures from the nose and throat of all contacts were negative.

CASE 8.—*History.*—L. M., colored girl, aged 15 years, was taken sick, January 22, with headache, backache, fever and restlessness. These symptoms continued, and on January 26 there was a marked degree of opisthotonos. Lumbar puncture was done on this date and 60 c.c. of slightly turbid fluid, under increased pressure, were removed. The fluid was positive for meningococci. Thirty c.c. of antimeningococcus serum were administered. There was no improvement, death occurring, January 29.

Source.—Two men living in the same house worked at the Army base. Cultures from the noses and throats of seven contacts were negative.

CASE 9.—*History.*—M. S., white man, aged 56, was taken ill, January 26, with severe headache, vomiting and stiffness of the neck. He was seen by his physician a few hours later, at which time there was marked apathy, amounting to stupor. Lumbar puncture was done immediately; 30 c.c. of antimeningococcus serum were administered, and this amount was repeated daily for six days. Improvement was noticed after the first day, and the patient was discharged cured.

Source.—The patient was a rent collector and came in intimate contact with a large number of government employees in this community. Cultures from the nose and throat of five contacts were negative.

CASE 12.—*History.*—E. B., white boy, aged 4½ years, was taken sick, January 25, one week following an attack of German measles, with fever, headache, vomiting and delirium. He was seen in consultation on the fifth day of illness, at which time he was semicomatose, with muttering delirium, from which he could be only partially aroused. There was stiffness of the neck with a marked degree of retraction. Kernig's and Babinski's signs were present, and there was a diffused petechial rash. Lumbar puncture was performed at once, and 40 c.c. of cloudy fluid, under pressure, were withdrawn. Fifteen c.c. of antimeningococcus serum were administered. Examination of the fluid was positive for meningococci.

The patient was removed to the City Detention Hospital and, ten hours following the first dose, he was given 15 c.c. of serum. After this, 15 c.c. of serum were administered daily for four consecutive days. Improvement was noticed after the second dose of serum, the fever declined, and the mental condition cleared up; but a few days later the patient developed a hemiplegia. This, however, was only transient, recovery was complete, and he was able to leave the hospital at the end of two weeks.

Source.—The boy's father and a boarder in the house worked at the naval base. Cultures from the noses and throats of five contacts were negative.

CASE 13.—*History.*—N. J., white girl, aged 2 years, was taken sick, January 28, with fever and cough. By the next day she had developed stiffness of the neck with marked degree of retraction. She was seen in consultation at 9 p. m. of the second day. Lumbar puncture was done and 40 c.c. of clear fluid, under pressure, were withdrawn. In view of the marked rigidity and in spite of the clear fluid withdrawn, 15 c.c. of antimeningococcus serum were immediately given. A cell count of the fluid was not made, but bacteriologically it was found negative.

On the morning of the 30th another lumbar puncture was done, 30 c.c. of slightly cloudy fluid were withdrawn, and 15 c.c. of serum were administered. Examination of this fluid was positive for meningococci. The patient was given 15 c.c. of serum daily for six consecutive days. Improvement was noticed after the second dose, and recovery was complete.

Source.—The child's father was employed in the Navy yard. Cultures from the noses and throats of five contacts were negative.

CASE 23.—*History.*—E. M., colored girl, aged 13 years, awoke on the morning of March 1 complaining of headache and slight fever. During the day she vomited several times. She was seen by her physician at 8:30 p. m., at which time there was stiffness of the neck and retraction. Spinal puncture was done immediately and 25 c.c. of cloudy fluid were removed. Examination of the fluid revealed many gram-negative diplococci. The patient was given 15 c.c. of antimeningococcus serum on two consecutive days. The disease ran a very mild course, the symptoms all cleared up after the first dose of serum, and the patient was discharged cured after one week.

Source.—Her father was employed at the Navy base. Cultures were all negative.

CASE 24.—*History.*—R. D., colored man, aged 21, complained, February 28, of general malaise and headache, but he did not stop work. During the night the symptoms became progressively worse, and by the next morning, March 1, he was quite delirious. When seen by his physician, his neck was stiff, and there was a marked degree of retraction. Spinal puncture was done immediately, 50 c.c. of slightly cloudy fluid were removed under marked pressure, and 30 c.c. of serum were given. Smears made from the spinal fluid showed many gram-negative diplococci. The patient was given 30 c.c. of antimeningococcus serum daily for nine consecutive days. Improvement was noticed after the first dose, delirium and the mental condition clearing up within a few hours. The case ran a moderate course, and recovery was complete.

Source.—The patient was employed at the naval base, and the day before the onset of the illness he had been in conver-

sation with a convalescent meningitis patient. Cultures from four contacts were negative.

CASE 27.—*History.*—Mrs. M., white, aged 46, awoke on the morning of January 6 complaining of headache, vomiting and myalgia. A physician diagnosed grip. These symptoms became progressively worse, and by the next day there was marked elevation of the temperature, delirium and a diffused petechial rash.

On the morning of January 8, the patient appeared very much better; the temperature was normal, the myalgia was relieved and the mental condition was clear. At 2 p. m. her husband found her semiconscious, delirious and suffering with intense frontal headache and blindness. There was opisthotonos with stiff neck, positive Kernig's sign and increased reflexes. Spinal puncture was done a few hours later. Thirty c.c. of cloudy fluid were removed which was positive for meningococci. The patient was given six intraspinal doses, averaging 30 c.c., of antimeningococcus serum. There was no improvement in the symptoms, death occurring, January 11.

Source.—The patient attended a wedding reception a few days prior to the onset of her illness, at which there was also present naval officers and enlisted men. All cultures taken from contacts were negative.

CASE 33.—*History.*—L. J., white boy, aged 6 years, was perfectly well until May 17, when he was taken suddenly ill with fever, vomiting and indefinite abdominal pains. May 18, he was quite apathetic. There was a marked degree of neck stiffness with retraction, positive Kernig's sign and increased reflexes. Spinal puncture on that date gave 30 c.c. of turbid fluid, under increased pressure. Examination of the fluid was positive for meningococci. The patient was admitted to the City Detention Hospital, where he was given 15 c.c. of antimeningococcus serum daily for five consecutive days. Improvement was noted after the first dose, and recovery was complete.

Source.—The patient was in intimate contact daily with a boarder in the same house who worked at the naval base.

CASE 40.—*History.*—T. I., white boy, aged 8 months, was taken sick, April 6, with slight fever, strabismus and muscular twitching. These symptoms continued, and on April 9 there was stiffness of the neck with retraction and diffused purpuric rash. Spinal puncture on this date gave 20 c.c. of very cloudy fluid, positive for meningococci. Fifteen c.c. of antimeningococcus serum were administered, but there was no improvement in the symptoms and death occurred in a few hours.

Source.—A few days previous to the onset, members of the family had attended a dance at which there were present a number of enlisted men from the Navy. No cultures were made.

We Should Live Up to Our Scientific Possibilities.—In short, Germany's scientific and industrial prestige was due chiefly to a better mobilization of forces; freer publication, better opportunities for research, to ideas and talent imported from other countries and plenty of push and pride in achievement. What we need in America is a better mobilization all along the line. We possess plenty of talent, as a rule not well directed nor given much encouragement. We have plenty of universities and industrial research laboratories of the highest grade, operating as uncoordinated individual units with very little team work to achieve large ends. We have many strong scientific and technical organizations, each holding regular meetings and supporting one or more journals. These organizations, like our universities, are strongly individualistic and exhibit very little team work or cooperation to achieve broad purposes. Science is only just beginning to be popular in our schools and in the public press; we need to advertise and popularize not only scientific and technical work, but especially deep, broad fundamental principles in every line of effort. Finally and most important of all, we need vastly increased effort in living up to our possibilities. In habitual effort the Teutons excelled us by at least 30 per cent. and at least equalized their deficiency in originality. We might easily double our stress of achievement without detriment to ourselves.—Dr. P. G. Nutting, *Science.*

FAVUS HERPETICUS, OR MOUSE FAVUS

POSSIBILITY OF PRODUCTION OF FAVUS IN MAN FROM AUSTRALIAN WHEAT *

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Immense stores of wheat have accumulated in certain districts in Australia for several years past because of the lack of shipping to carry it to the foreign markets. This wheat is placed in sacks and stored in great piles. The presence of these quantities of readily available food led to such rapid multiplication of mice, particularly field mice, that the control of these rodents and the saving of the wheat threatened to become a serious problem. The mice, however, were attacked by a virulent skin disease, which reduced their numbers rapidly. The damage already done to sacks and wheat necessitated the rebagging and shifting of a large portion of the grain. Men employed in this work and women engaged in mending gnawed and torn bags were in many cases attacked by a skin infection, apparently of murine origin. Accounts of this disease both in mice and in man have appeared within the last year by the Australian observers Paul[1] and Lawrence.[2] The latter diagnosed the disease in man as favus herpeticus caused by the dermatophyte *Achorion quinckeanum,* the parasite of mouse favus.

In spite of the shortage of shipping, the United States has been importing considerable quantities of Australian wheat. The question arises, Is there danger that men engaged in the handling and milling of the wheat may become infected with this skin disease? In an attempt to answer this query certain studies have been made at the Hygienic Laboratory of samples of wheat and of mouse skins collected in Australia by agents of the U. S. Department of Agriculture. Since there does not appear to be any general discussion of the geographic distribution of the disease, and only a few scattering notes on the disease published in English, a review of the literature of the subject has been undertaken.

DISTRIBUTION OF THE DISEASE: HISTORICAL

The first published note on favus in the mouse is that of Bennett[3] in England in 1850. In a footnote to a lecture on human favus, he records having seen a case of favus "on the face of a common house mouse, in which animal the same cryptogamic vegetations were to be detected as in man." According to Bazin,[4] favus in a trapped mouse was also reported by Draper[5] in New York. The infection had apparently been transmitted from mice to a cat, and from this animal to two children. Gluge and d'Ukedem[6] in Belgium described a skin disease of the mouse which was probably favus.

Three records of mouse favus in Germany were published in 1858. Friedrich[7] in Würzburg described a mouse brought to him by a student. The animal showed the whole region between the ears and snout covered by a yellowish white crust like a cap. The clinical picture was that of favus; this was verified by the microscopic findings. The parasite was believed

* Owing to lack of space, this article is abbreviated in THE JOURNAL by omission of the references to the literature. The complete article appears in the author's reprints.

to differ in some points of morphology from that of human favus. A somewhat similar account is that of Zander,[8] who noted that the disease might easily cause the death of an infected mouse. He also raised the question of identity between the fungus of human favus (*Achorion schoenleinii*) and that of mouse favus, which he termed *Achorion bennetti*. Since no description of the fungus is given, the latter name as applied to the mouse favus fungus has been overlooked, probably rightly, by subsequent writers. Schrader[9] reported an outbreak of favus among the mice in an old dwelling; mice caught practically all showed the characteristic favic lesions and excresences.

The first evidence that favus can be transmitted experimentally from mouse to man was given by Pick,[10] in 1865. He succeeded in producing the disease in man by rubbing the skin with particles from the scutulum from a diseased mouse. He concluded that the diseases in man and the mouse are caused by the same parasite. Von Frauenfeld, in the same year, reported an epidermal growth on the head and ear of a house mouse, and identified the disease as favus. Tripier[11] observed cases of mouse favus in Lyons and transmitted the disease experimentally.

Mollière[12] found many cases of the disease mouse favus in Lyons. Simon[13] examined three mice caught in a workhouse in Hamburg. All of the animals showed well marked favic lesions. Later many other mice with favus were secured from the same place. He states that the disease frequently destroys the eyes and may be fatal to mice.

Apparently the first European instances of probable natural transmission of infection from mouse to man are those given by Anderson[14] in 1868 at Glasgow, Scotland. He described several instances of such transmission, among them a case of favus contracted by a young child probably from a trapped mouse, and afterward communicated to other members of the family. He noted that this disease in mice was reported as common in many homes in Glasgow.

Spontaneous transmission of favus from mouse to man were also recorded by Saint Cyr,[15] by Horand,[16] and by Rodet[17] in Lyons, and by Demons[18] at Bordeaux. Paton[19] recorded an extensive outbreak of "ringworm" among soldiers in barracks in England. A cat was found to be seriously affected with favus, and later large numbers of infected mice were observed. He states that the inhabitants of the country about were quite familiar with the disease, finding it "especially fatal to mice, common in cats and children, and occasionally affecting adults." Still later, similar reports were made by Megnin[20] and by Raillet[21] in Paris. In several cases (Rodet, Horand, Demons) transmission to man is alleged.

Flügge[22] stated that favus in mice had frequently been observed in his laboratory (Göttingen), and that Nicolaier had there cultivated the fungus and proved the transmissibility of the disease from mouse to mouse. He concluded that the typical human favus and mouse favus showed certain microscopic differences. This is apparently the first record of the cultivation of the fungus.

Careful studies of the favus fungi in the modern sense were first made by Quincke.[23] This investigator differentiated by cultural and pathologic characters three types of favus fungi from the lesions in man. These he termed the alpha, beta and gamma strains. The beta and gamma types were shown later to be the fungus typical of human favus, *Achorion schoenleinii*. The alpha fungus is of particular interest because it was later shown to be the characteristic fungus of mouse favus. The organism was isolated from the neck lesion of a miller. In general appearance the lesion resembled herpes tonsurans, covering an area about the size of a dollar. Examination showed it to be a true favus with herpetic rings. The only source of infection that could be adduced was in the bags of meal that he frequently carried on his shoulder. Quincke was told that another workman at the mill had a similar lesion on the cheek, but he did not see the case. This author made a careful microscopic and cultural study of the fungus, and proved the possibility of transmitting the disease by means of pure cultures applied to the skin of man, mice and dogs. From the lesions so produced he again secured the organism in pure cultures. Later Quincke[24] isolated the same alpha fungus from a young girl at Kiel. In searching for the origin of the disease, he found that mice in the barn in which the girl was accustomed to play were infected with favus. Still later he isolated the mouse favus fungus from the lesions of two cats. He summarizes the differences, clinical and microscopic, between true human favus and mouse favus, and suggests that the diseases in man be termed, respectively, "favus vulgaris" and "favus herpeticus." Boer[25] in Berlin isolated the alpha fungus from mice, and transmitted the disease from mouse to mouse.

The name *Achorion quinckeanum* by which the fungus of mouse favus is now generally known was given to Quincke's alpha fungus by Zopf.[26]

During the next decade there was much discussion concerning the number of species of fungi capable of producing favus in man. Some authors maintained that only one species could be recognized; others described as many as nine. Into the details of this controversy it is not necessary to enter, only certain work being pertinent.

De Fortunet and Courmont[27] isolated a fungus from a vesiculous eruption of a hand. This was studied by Busquet,[28] who regarded it as the fungus of mouse favus and termed it *Achorion arloingi*. Later[29] he concluded that all favus is caused by the same fungus, but he believed that the primary agencies in the distribution of the disease were the rats and mice. He records in support of this contention a case of favus on the hand of a young woman who had removed some diseased mice from a trap. Other mice caught later in the same place were found by him to be infected with favus.

Frank,[30] in Hamburg, made a study of cultures secured from cases of human favus and two from mice. He found that there were distinct differences between the fungus usually found in human favus and that in the mouse. Král[31] noted that Frank's mouse favus was transmissible to man.

Sherwell,[32] in Brooklyn, concluded that a number of cases of human favus were contracted from the lower animals. He mentioned a family in which two contracted favus from a dog, which in turn was probably infected from rats and mice. Many of the latter infected with favus were seen. Apparently this is the second American ascription of human favus to rodents.

Neumann[33] stated that mouse favus is common in Lyons, frequently proving fatal to the animals infected.

Hutchins,[34] in Atlanta, Ga., recorded a case of favus of the scalp of a young negro child, the disease apparently being contracted from white rats.

A favus fungus differing somewhat in its characteristics from those previously reported was described by Waelsch,[35] who isolated it from two favus mice from Hamburg. According to Sabouraud,[36] it is probable that the fungus isolated by Ingianni[37] from a case of human favus in Italy was *Achorion quinckeanum*.

Plaut[38] concluded that there exists only one species of the favus fungus, but that by long growth on different species of animals distinct strains have been produced which show a considerable degree of constancy, but which may be transformed one into the other.

One of the best modern descriptions of the fungus of mouse favus is that of Bodin.[39] He isolated *Achorion quinckeanum* once from a mouse from Autun and four times from mice from Rennes. He concluded that natural infection of man from mice is comparatively rare, but that it does occur.

Adamson[40] has given excellent accounts of several cases of human infection with mouse favus in England. Plaut,[41] (1909) in summarizing the knowledge concerning mouse favus, accepts the differentiation of the mouse favus from the human type. He concludes that favus of the smooth skin in man is usually of murine origin. An illustration is given of the arm and breast of a woman infected accidentally from a mouse. In contrast to Bodin, who reported about eight cases of body favus to a hundred in man, Plaut states that in his clinic in Berlin there are more cases of body favus (mouse infection directly or indirectly) than of the head favus.

Chajes,[42] in Berlin, reported an isolation of the fungus of mouse favus from a hand. He concluded that this type of infection is much more common in man than is commonly thought, for the disease is apt to be atypical and to be classed as a herpes tonsurans. Tomaszewski[43] gave an excellent description of the differential characteristics of human and mouse favus.

Probably the most extensive of the treatises on favus published is that of Sabouraud.[36] From his large experience in France he concluded that while there are distinct types of favus fungi to be found in animals, proved instances of their transmission to man are very rare. In his own clinic he has never seen an isolation of the mouse favus fungus in more than 200 cases of human favus. Bloch[44] protested the conclusions of Sabouraud, stating that in his own experience in Basel the mouse favus fungus producing the body lesions in man was much more common than the typical head fungus of man. He rarely observed *Achorion schoenleinii* except in the Russian and Italian immigrants. He recognized clearly that there are three distinct fungi capable of producing favus in man, *Achorion schoenleinii, A. quinckeanum* and *A. gypseum*. Later[45] he described a fourth, *A. violaceum*, cultivated from four cases of human dermatomycosis. He was able to differentiate the organism by its clinical effects and by its biologic and cultural characters. Two of the cases occurred in a house in which mice having favic lesions were caught, the same fungus being cultivated from both mice and man.

Plaut[46] states that favus is common among the mice in Hamburg, and that each year he sees cases of the disease in man. DuBois,[47] in Geneva, records two isolations of mouse favus from man.

Of particular interest is the appearance within the last year of the two papers first mentioned, relating to mouse favus and its spread to man in Australia. There seems to be some question as to whether the organism isolated by Paul,[1] and named by him *Trichophyton rodens*, is the same as the fungus that causes mouse favus. The descriptions and illustrations of Lawrence,[2] on the other hand, leave little doubt that he is dealing with *Achorion quinckeanum*. According to Paul, the characteristic skin lesions occur mostly on the exposed parts of the hairy regions of the face, producing a multiple kerion. In the particular case described, two months had elapsed between the opportunity for infection and the development of the lesions. Lawrence believes that Paul was not dealing with a typical case. Fungi isolated by the latter author both from field mice and from man showed the cultural characteristics of the mouse favus fungus, and identical lesions were produced in mice and guinea-pigs inoculated with cultures from each source. The lesions in man show well developed scutula in some cases, and correspond accurately to the descriptions of the favus herpeticus of Quincke.

From this summary, it is evident that a distinct disease, mouse favus, exists commonly in Belgium, England, France, Germany, Italy, Scotland, Switzerland, probably other parts of Europe, Australia and probably more rarely in the United States. There is abundant evidence of the transmissibility of the disease from mouse to man, producing the favus herpeticus of the glabrous skin. It is apparent that the disease is of sufficient importance to warrant the careful study of the possibility of its importation into the United States with Australian wheat. Even though it should be imported, however, there would probably not be good reason for excluding the wheat, for the disease in man is usually not serious, and yields readily to treatment. It is much more amenable to treatment than the human favus of the scalp. In mice, however, the disease frequently, perhaps generally, proves fatal.

EXPERIMENTAL

Samples of Australian wheat from two sources were examined. One sample contained parts of the dried skins of two mice. The latter were so dried, dusty and adherent to the cotton in which they were wrapped that a satisfactory examination proved difficult. No typical favic scutula or crusts were present. Scrapings from the denuded areas showed fungus hyphae, but the material was too meager and in too poor condition to permit a reliable diagnosis. It is possible that the mice examined had been infected, but there was no microscopic proof. Many attempts were made to infect mice and guinea-pigs from these skins and from the wheat. All were without result. No fungus resembling that of favus was secured as the result of numerous culture attempts. If present originally, in the wheat samples or the mouse skins, the fungus probably had died as a result of the prolonged desiccation.

In view of these negative experimental results, the question may arise as to the possibility of spores or hyphae of the mouse favus surviving transportation. Data on the longevity of the fungi of this group are not abundant. Sabouraud states that the fungus of favus, at least as it exists in the scutula, remains viable for a considerable period. Sabrazès found that

the spores in the scutulum were still alive after two years. Apparently they are more resistant than are those of other dermatophytes. It is not improbable, therefore, that under certain conditions there may be an occasional appearance of mouse favus or, better, of favus herpeticus, among those handling Australian wheat in the United States. The possibility of the spores being present in flour and causing infection in bakers is very remote. Careful studies of the thermal death point of the spores of this fungus apparently have not been made, but related to trichophytes have been shown to be readily destroyed by heat. It is not at all improbable, however, that some of the mill by-products used as animal feed may contain viable spores and infect mice, or possibly other animals or man occasionally.

CONCLUSIONS

1. There exists in many parts of Europe and in Australia, and probably in the United States and in other parts of the world a disease, mouse favus, the cause of a highly fatal infection among mice and not infrequently transmitted to man, producing a herpetiform favus of the smooth skin. The disease in man usually yields readily to treatment.

2. Samples of mouse skins and of wheat from Australia failed to show evidence of favus. That the disease is prevalent among the field mice that have attacked the Australian wheat stores seems to be established through the accounts of Paul and of Lawrence.

3. It is not improbable that cases of favus herpeticus may arise occasionally among men who handle the imported Australian wheat or in animals, particularly rodents, that feed on the grain or on certain of the mill by-products.

4. It is not probable that the danger from the disease is great enough, or the disease itself serious enough, to warrant interference with the importation of the wheat from Australia.

A CASE OF MULTIPLE CHANCRES OF THE PENIS

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Referring to the primary lesion of syphilis, Osler[1] states that "in about one fourth of the cases it is multiple." Contrary to this opinion, a perusal of the literature of the past ten years reveals but one complete case report of multiple chancre. Zeisler[2] describes in detail the case of a young colored woman who presented two separate lesions situated on the lower lip, both of equal duration. Each presented the typical appearance of a chancre, and each was proved so to be by dark-field examination of the expressed secretion. The same author mentions recalling having seen a case of double chancre of the cheek.

Because of the paucity of reported cases of multiple chancre, I have deemed a case recently coming under my observation as being worthy of complete description. The case is of special interest not only because it presents two separate chancres but also because there was a difference of four weeks in the development of the two lesions.

1. Osler: Modern Medicine **3**: 454, 1907.
2. Zeisler, E. P.: Multiple Chancres of the Lip J. A. M. A. **68**: 1546 (May 26) 1917.

REPORT OF CASE

History.—H. J., white man, single, aged 28, a drill dresser, (Marquette Dispensary No. 6855), admitted Oct. 28, 1918, had had a single small sore on the penis in 1913, which healed in several days with the application of some yellow powder. Neither rash, sore throat, falling hair, nor bubo followed. The patient admitted intercourse, August 10, and, with a different party, September 3, but at no time subsequently.

September 7, he noticed a small sore in the coronal sulcus on the right side of the penis. This sore continued to increase in size, but was not of sufficient size to warrant much

Multiple chancre of penis.

concern until it had been present two weeks. October 5, four weeks after the appearance of the first sore, the patient noticed a separate sore developing in the coronal sulcus on the left side of the penis. In spite of repeated applications of mercuric oxid both sores had continued to increase in size. About October 20, the patient began noticing a soreness of the throat which had persisted. About October 25, the patient noticed a rash.

Physical Examination.—The entire pharyngeal wall was everywhere inflamed but not ulcerated. There was a faint but distinct macular rash, more prominent on the neck and chest but also seen on the face, back and extremities. There was a general lymphadenitis, not particularly marked, in each groin. In the coronal sulcus on each side of the penis was a large, typical hunterian chancre, ulcerated on the surface and situated on a hard, indurated base. The two chancres were completely separated by a centimeter of perfectly healthy tissue.

Laboratory Findings.—By carefully collecting a drop of serum expressed from the margin of either sore, Dr. Daniel Hopkinson succeeded in demonstrating the presence of *Spirochaeta pallida* in both lesions. The Wassermann test of the blood was found to be + + +. After the first injection of 0.4 gm. of arsphenamin there was a characteristic healing change noted in each sore.

COMMENT

That both lesions represent the same infection, one developing after four weeks' incubation and the other after eight weeks' incubation, seems altogether improbable. There remain but two other possibilities: The first, that the right chancre represents the original infection contracted four weeks before its appearance, and that after a second incubation period of four weeks, a transplanted chancre developed on the left; the second, which seems the more probable, that the right chancre was contracted August 10 and the left chancre September 3, each developing after four weeks' incubation.

Wells Building.

Hygiene.—Only unpractical people ignore hygiene. Hospitals, insane asylums, jails and poorhouses are monuments to our ignorance and conceit. We must know, we must understand, and we must practically apply our knowledge of hygiene; otherwise we perish.—*Monthly Bulletin*, Indiana State Board of Health.

TUBERCULOSIS OF THE STOMACH

WITH REPORT OF A CASE OF MULTIPLE MILIARY TUBERCLES

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Tuberculosis of the stomach is a rare condition. In a series of 2,501 gastric operations at the Mayo Clinic, tuberculosis was found only once.

From a recent paper of Broders[1] on this subject, with a complete bibliography up to 1917, it is evident that tuberculosis of the stomach had been described before the discovery of the tubercle bacillus of Koch in 1882.

According to Broders, gastric tuberculosis may be divided into six types: (1) ulcer, single or multiple; (2) miliary tubercle; (3) solitary tubercle; (4) pyloric stenosis; (5) tumor or nodule, single or multiple, and (6) lymphangitis.

The case reported here apparently belongs to Type 2.

REPORT OF CASE

History.—S. S., woman, aged 20, clerk, single, admitted to my service at the Beth David Hospital, Feb. 21, 1918, and discharged, March 26, 1918, complained chiefly on admission of pain in the epigastrium, pain in the precordial region, attacks of vomiting, headaches, loss of flesh, weakness and constipation. The father and two sisters had indigestion. There was no history of tuberculosis, carcinoma, diabetes or alcoholism. The patient had had scarlet fever, measles and diphtheria, and was anemic in early childhood. She began to menstruate at the age of 14. The menstrual periods

Fig. 1.—Section from tubercle, × 100.

occurred every five weeks. There was a moderate flow for four or five days. Pain in the lower abdomen was felt on the first and second day of the menstrual flow. The patient ate and slept regularly, chewed the food well, and drank one cup of tea and one cup of coffee daily. She drank no liquors. Her appetite was poor. She denied venereal diseases.

Four months before, while visiting friends, the patient ate some roast meat and swallowed a large piece. On returning home she felt nauseated and after taking a purgative was somewhat relieved. One week later she began to feel a dull pain in the pit of the stomach which was relieved in from one half to one hour after taking food, only to begin again three hours later. The pain radiated to the left of the epigastric region.

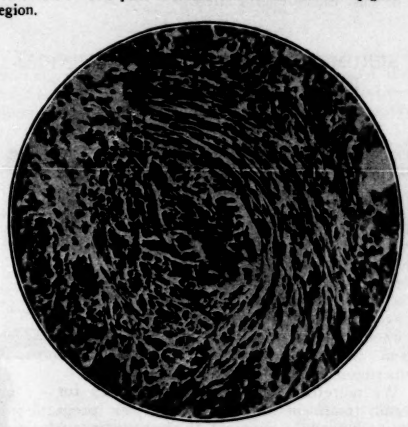

Fig. 2.—Section from tubercle; × 215.

The patient also experienced pain on bending forward, on breathing or laughing. For the last two weeks she had been awakened by pain about 2 a. m., and was relieved by turning on the right side. She vomited on several occasions during her illness. Occasionally she had headaches in the supra-orbital region, without any relation to the partaking of food. The bowels moved only after the patient had taken liquid petrolatum. She had never noticed any blood in the stools, nor did the evacuations at any time have a tarry appearance.

Physical Examination.—The heart and lungs were normal. The patient had a high arched palate. There was slight prominence of the thyroid gland. A fairly marked rigidity was noticed in the upper abdomen, especially to the left side and exaggerated knee jerks.

Preoperative laboratory examinations revealed: Blood: hemoglobin, 85 per cent.; erythrocytes, 4,800,000; leukocytes, 12,000; polymorphonuclears, 59 per cent.; lymphocytes, 31 per cent. Urine: Albumin and sugar were negative, and indican not in excess. There were no casts. A few calcium oxylate crystals were noted. Gastric Analysis: After a test breakfast, 210 c.c. of contents were obtained. Free hydrochloric acid was 18, and total acidity 56. There was no blood. Roentgenoscopy revealed ulcer at the lesser curvature of the stomach with adhesions.

Operation and Result.—A median 5 inch upper abdominal incision was made by Dr. A. O. Wilensky, March 5, 1918. An area of the lesser curvature of the stomach about 2 inches long, extending to the anterior and posterior surface of the stomach for an equal distance was thickened and inflamed. There were numerous fresh fibrinous adhesions and large numbers of miliary tubercles thickly scattered over the inflamed area. The condition extended upward into the gastrohepatic omentum for about 1 inch. The gross diagnosis was tuberculosis. The remainder of the abdomen was explored, but no other focus of tuberculosis was found. The abdominal wall was sutured in layers and dry dressing applied.

The pathologic report of sections from one of the tubercles removed at the operation was: caseation of tubercle, giant cells and nuclei (Figs. 1 and 2).

Roentgenoscopy of the chest, March 16, 1918, revealed the usual amount of peribronchial thickening. There were no

1. Broders, A. C.: Tuberculosis of the Stomach, with Report of a Case of Multiple Tuberculous Ulcers, Surg., Gynec. & Obst. **25**: 490, 1917.

suspicious areas. The von Pirquet test, March 21, 1918, was reported positive by Dr. Jersky.

The complement fixation test made independently by Drs. H. R. Miller and Jersky were reported as weakly positive.

The patient made a good recovery and was discharged, March 26, 1918, apparently well.

63 East Eighty-Fourth Street.

SERUM TREATMENT OF POSTINFLUENZAL BRONCHOPNEUMONIA *

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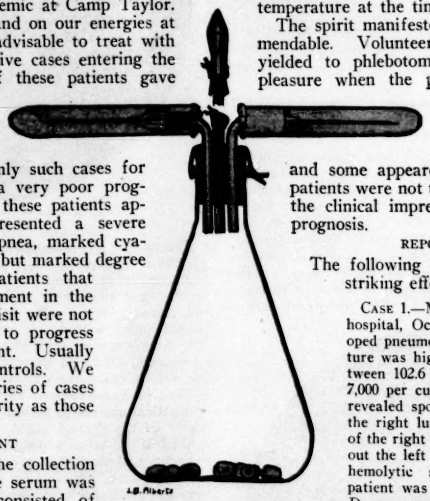
The use of serum from patients convalescing from postinfluenzal bronchopneumonia in the treatment of this disease was suggested by the author early during the appearance of the epidemic at Camp Taylor. As there was a great demand on our energies at the time, it did not seem advisable to treat with serum a series of consecutive cases entering the hospital, because many of these patients gave promise of recovering without it, and the treatment would have been superfluous.

We therefore selected only such cases for serum treatment as gave a very poor prognosis clinically. Some of these patients appeared moribund. All presented a severe toxemia with extreme dyspnea, marked cyanosis, fever, and a variable but marked degree of lung involvement. Patients that showed signs of improvement in the day or two preceding our visit were not treated, as they promised to progress favorably without treatment. Usually these were selected as controls. We thus used as controls a series of cases of the same type and severity as those we treated.

SERUM TREATMENT

The method used for the collection and the preparation of the serum was simple. The apparatus consisted of 500 c.c. Erlenmeyer flasks fitted with rubber stoppers through which three L-shaped tubes led outward. To two of these a large-caliber needle was attached by means of a short piece of rubber tubing, and protected by a glass covering as shown in the illustration. The third piece of glass tubing was plugged with cotton and used as an exhaust for suction when the blood was being drawn.



Apparatus for collection of serum.

The blood was taken under sterile precautions from the elbow veins, with a tourniquet around the arm. We collected from 300 to 400 c.c. from each donor. Two donors felt faint during the phlebotomy, but no other consequences were noted.

The blood was allowed to stand for from twelve to eighteen hours in the refrigerator. The serum was then decanted under sterile precautions and tested for complement fixation against syphilis. Serum showing a positive Wassermann reaction was discarded. It was deemed unnecessary to test hemolytic or hemagglutinative reactions between the bloods of donor and recipient, as the amounts were not sufficient to make these reactions in the circulation of consequence. The serums of two or three donors were mixed and about 100 c.c. were given intravenously at each injection. Most of the patients received two injections within twenty-four hours. A few received three injections and some, the apparently moribund patients, necessarily had only one injection. In some of the cases a preliminary phlebotomy of a small amount of blood was done. The details will be mentioned in the case reports.

Convalescent influenza patients and influenzal bronchopneumonia patients were used as donors. In the treatment of the last twenty cases of our series only bronchopneumonia convalescents were used. We chose preferably full-blooded large-built individuals in whom the disease had been severe. In most of these, less than one week had elapsed of normal temperature at the time of phlebotomy.

The spirit manifested by the donors was commendable. Volunteers responded heartily and yielded to phlebotomy with an avowed heroic pleasure when the purpose of the work was stated to them.

The patients were all in a very critical condition at the time of the injection, and some appeared moribund. The control patients were not treated because they all gave the clinical impression of a more favorable prognosis.

REPORT OF CASES

The following cases especially indicate the striking effects of the serum treatment:

CASE 1.—Major A. D. C., admitted to the hospital, October 14, with influenza, developed pneumonia, October 21. The temperature was higher, October 22. It ranged between 102.6 and 99.4. The leukocytes were 7,000 per cubic millimeter. Roentgenoscopy revealed spot shadows in the upper lobe of the right lung, a shadow in the lower lobe of the right lung, and spot shadows throughout the left lung. The sputum showed nonhemolytic streptococci. October 25, the patient was extremely toxic and jaundiced. Dyspnea was marked, cyanosis was present, and the patient was dull mentally. At 4:30 p. m., 100 c.c. of serum were given after a preliminary phlebotomy of about 60 c.c. of blood. Within six hours there was much improvement. The following morning the dyspnea was much less, the cyanosis diminished and the patient more alert. The improvement was remarkable. October 26, at 5:30 p. m., another intravenous injection was made of 100 c.c. of serum after preliminary phlebotomy of 50 c.c. of blood. The temperature promptly reached normal, and recovery continued uneventful.

CASE 2.—R. L. B. was admitted to the hospital, October 14. October 20, his left chest showed dulness and bronchial breathing below the level of the fourth rib; the right chest was slightly less involved. October 24, the patient appeared moribund. The white blood count was 7,900 per cubic millimeter. The temperature ranged about 102 F. There was extreme dyspnea, marked delirium, cyanosis and rapid, bounding pulse. The condition seemed hopeless, with beginning pulmonary edema and overwhelming toxemia. At 11 p. m., 90 c.c. of immune serum were given. The following morning the temperature was 99.4 F., and in the afternoon it fell to 98 F. The toxemia still persisted, though the improvement following the serum injection was surprising. October 26, at 11 a. m., with the patient still toxic, an additional 70 c.c. of serum were given. Recovery thereafter was progressive.

* From the Medical Service, Base Hospital, Camp Zachary Taylor, Ky.

CASE 3.—H. L., admitted to the hospital, October 9, developed pneumonia soon after. The temperature varied between 102.4 and 104.6 F. Roentgenoscopy revealed spot shadows throughout the right lung. The sputum showed pneumococcus Type IV. October 25, the temperature was 102; there was evidence of marked toxemia; marked dyspnea and cyanosis, delirium and jaundice. At 11:30 a. m. an intravenous injection of 80 c.c. of serum was given. The patient's condition continued unchanged for three days, during which the toxemia increased, the jaundice was marked, and the fever continued. October 28, at 2 p. m., a second injection of 100 c.c. was given, and this was repeated at 10 a. m. the following day. The patient improved promptly, and recovery was uneventful.

CASE 4.—C. C., admitted to the hospital with influenza, September 27, developed bronchopneumonia. Roentgenoscopy revealed shadows in the lower right lung and the middle portion of the left lung. The temperature varied between 102 and 103. October 22, the condition was very critical; the patient was semiconscious. His temperature was 102, with marked dyspnea and cyanosis. At 3:30 p. m., 100 c.c. of serum were injected intravenously. The following morning the temperature fell to 100.8 F. At 10 a. m., 100 c.c. of serum were again given. The patient still remained toxic and irrational. At 10 a. m., October 25, 100 c.c. of serum were again given. The patient's recovery seemed irrefutably prompted by the use of the convalescent serum.

CASE 5.—W. M. S., aged 27, admitted to the hospital, September 30, developed bronchopneumonia later, and on October 22 appeared to be moribund. He was semiconscious, toxic, dyspneic and cyanosed, and meningeal involvement was suspected. At 9 p. m. on that day, 100 c.c. of serum were given intravenously. The patient seemed much improved the following morning, and his recovery was progressive after the one injection.

SUMMARY

1. Twenty-five patients with clinically grave prognosis, toxemia, extreme dyspnea and cyanosis and extensive lung involvement were treated with serum from convalescent influenzal bronchopneumonia patients.

2. The mortality, as determined from the final disposition of the patients in this series, was twelve, or 48 per cent.

3. Eighteen other patients with prognosis equally grave clinically were used as controls and treated like the others, but without the use of serum.

4. The mortality in this series was twelve, or 66.6 per cent.

5. The selection of the most severely ill patients was deemed more correct for judging the value of the immune serum than the selection of a series of consecutive patients, the larger number of whom would recover without the use of the serum.

6. From the relative percentage mortality in the two series as well as from the surprising beneficial effects of the serum in individual cases, we believe that serum from convalescent influenzal bronchopneumonia patients deserves further trial in the treatment of the disease.

7. It may perhaps act as a favorable antitoxic factor in the circulation to assist in the general reaction to the pathologic process.

8. It must be emphasized that the number of cases in this series does not warrant very positive conclusions.

The Alkaline Reserve in Shock.—In shocked men there is a reduction of the so-called "alkaline reserve" of the blood, that is, the amount of sodium bicarbonate present. This is due to the development of nonvolatile acids which unite with the sodium and drive off the carbon dioxid.—*Review of War Surgery and Medicine.*

PHYSICAL EXERCISES IN USE IN THE CARDIOVASCULAR SERVICE

GENERAL HOSPITAL NO. 9, LAKEWOOD, N. J.

BERTNARD SMITH, M.D. (LOS ANGELES)
Captain, M. C., U. S. Army
LAKEWOOD, N. J.

The exercises here reported were planned for the training of soldiers with "irritable heart," and they have been used for a sufficient length of time to prove their value in physical development and in estimating

Fig. 1.—Stride ball relay, for advanced grades.

the fitness of the men for military service. Tests of muscular strength have shown that a large proportion of the men, sent to this hospital on account of the symptoms that characterize the "irritable heart of soldiers," are of poor muscular development. They give, also, a history of having lived, in civil life, at a physical level considerably below that at which their symptoms appear. In many instances the situation is complicated by the fact that for years their families and physicians have continually impressed on them the idea that they must "take it easy," and never "overexert," on the

Fig. 2.—Push ball, for advanced grades.

grounds that they were "not strong" or that they had a "weak heart." The main problem, in such cases, is to improve the general physical condition of the patients, and but little progress can be made in this direction until they begin to get some self-confidence, and realize that even if they do get tired, short of breath or have some pain in the chest, nothing serious is going to occur. This type of individual must be gradually taught that it is safe for him to venture beyond what he has previously considered the limit of his physical activity. With this in view, the exercises of the first and second grades are given in slow rhythm, and care is taken to avoid short, snappy commands. The only part here carried out with anything like

military precision is stepping from the line to the position for the exercises. This is done promptly on the command.

One medical officer is present at each exercise period. He watches the men closely, noting any objective signs that may indicate overexertion, and recording any symptoms that may be voluntarily mentioned by the patient. No observations are made on the pulse rate or blood pressure, and everything possible is done to direct attention away from the heart and to focus

Fig. 3.—Combined cardiac class.

Fig. 4.—Cardiovascular patients in graded exercises.

it on the problem of general physical development. The medical officer is the only person having the right to grant excuses from the exercises, and he decides when the men are ready to advance in the grades. The usual length of stay in each grade is one week, but in some instances this must be prolonged. It is not uncommon for a patient to complain of subjective symptoms for the first day or two when beginning a new group of exercises, and to have the symptoms disappear when he is reassured as to their triviality and made to continue until he becomes accustomed to the work of the grade. The medical officer in charge of the physical training has a very important part in making the work a success. It is essential that the patients should have absolute confidence in his professional ability. He must be a good judge of men, and must be able to distinguish clearly between those who, lacking self-confidence, need to be encouraged, and those who are lazy or malingerers and need to be driven or disciplined. By informal talks with the men, either one at a time or in small groups, he can exert an influence that is of value in both discipline and development.

It has been found in this hospital that the interest of the men in the exercises is greatly stimulated by checking up the degree of improvement with muscular strength tests. The method of Martin[1] is used. These tests enable the men to see for themselves the progressive improvement in their physical condition. It is also regarded as important that the exercises should be given by physical trainers who have had considerable experience and also understand thoroughly all the details as to the way in which the various exercises should be carried out.

INTERPRETATION OF THE COMMANDS

A few explanations of some of the commands used may be useful:

Arms forward: The arms straight, shoulder high and shoulder width apart, palms turned inward and shoulders back.

Arms forupward: Arms raised upward by passing through the arms forward position.

Arms sideward: Arms shoulder high, hands slightly behind a line drawn through the shoulders, palms downward.

Fig. 5.—Grade I, Exercise 3.

Fig. 6.—Grade I, Exercise 4.

Fig. 7.—Grade II, Exercise 3.

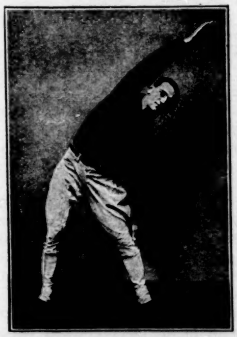


Fig. 8.—Grade II, Exercise 6.

Arms sideupward: Arms raised through arms sideward position, palms turned inward as the arms are raised upward above the shoulders.

Arms backward: Arms are raised over the head and backward as far as possible, with chest raised.

Hands on hips: Hands firmly on hips, thumbs to the rear, elbows and shoulders well back.

1. Martin, E. G.: Am. J. Physiol. 46: 67, 1918.

Arms bent for thrust: Arms bent, elbows close to sides, forearm verterical, hands clenched at side of shoulder, knuckles outward.

Arms bent for strike: Hands clenched over shoulders, knuckles to the rear, elbows shoulder high and well back.

Support lying frontways: Weight supported on hands and toes—the arms, trunk and legs straight.

Trunk bent forward: Back bent as much as possible, head up, knee straight. Head leads in return movement.

Trunk lowered one half forward: Back flat, head up, trunk carried midway between vertical and horizontal positions.

Trunk lowered forward: Back flat, trunk to horizontal, head up.

Trunk bent backward: Chest raised, head and neck lowered backward as a unit, chin in, knees straight. The bending is in the upper spine.

Trunk bent sideward: Body bent directly sideward, knees straight, feet flat on the floor.

Chest raised: The chin drawn in and the chest raised upward and forward.

Heels raised: Heels raised, ankles fully extended, weight on toes, heels slightly separated.

Knees bent: Heels raised and slightly separated, knees bent outward, body erect, head up.

Leg raised: Body held erect, chest raised, leg raised as high as possible, knee and ankle extended.

Foot placed: Foot placed in given direction, toes touching floor, leg straight, weight on stationary foot. Feet about 18 inches apart.

Stride: Weight equally divided on both feet, feet flat on floor. Feet about 24 inches apart.

Side Step: In given direction. Weight transferred to stepping leg, heel of stationary foot raised. Distance about 24 inches.

Lunge: Leg raised and a step taken in given direction, knee of stepping leg bent, feet flat on floor, body erect. Distance about 24 inches.

Feet closed: Inner edges of feet together, knees together.

Head lowered backward: Chin drawn in, head and neck lowered backward as a unit.

Fig. 9.—Grade III, Exercise 1.

Fig. 10.—Grade III, Exercise 3.

Fig. 11.—Grade III, Exercise 6.

Fig. 12.—Grade IV, Exercise 3.

Fig. 13.—Grade IV, Exercise 4.

Fig. 14.—Grade IV, Exercise 8.

RHYTHM OF MOVEMENTS

Arm and leg movements are usually taken in fast rhythm.

Trunk and head movements are always taken in slow rhythm.

The balancing exercises are done on count or command. These exercises are the third in each of the various groups.

In compound exercises, the rhythm is that of the slowest movement.

EXERCISES

GRADE I (fifteen minutes):

1. Raise arms sideupward—1. Return—2.
2. Arms bent for thrust: Straighten arms sideward and raise chest—1. Return—2.
3. Bend arms for thrust: Raise heels and chest—1. Return—2.
4. Hands on hips: Lower trunk one half forward and exhale—1. Return—2.
5. Bend arms for thrust—1. Straighten arms upward—2. Return—3,4.
6. Hands on hips: Bend trunk left—1. Return—2. Right—3, 4.
7. March in place (one minute).
8. Raise arms sideward and inhale. Lower and inhale.

GRADE II (fifteen minutes):

1. Arms bent for thrust: Thrust arms forward—1. Return—2.
2. Raise heels and chest. Inhale—1. Return—2.
3. Bend knees one half deep—1. Return—2. (Hands on hips.)

4. Hands on hips: Raise chest and inhale—1. Lower trunk one half forward and exhale—2. Return—3, 4.

6. Arms bent for thrust, feet closed: Turn trunk left—1. Return—2.

Fig. 15.—Grade V, Exercise 1.

Fig. 16.—Grade V, Exercise 3.

Fig. 17.—Grade V, Exercise 4.

Fig. 19.—Grade V, Exercise 6.

5. Arms bent for thrust: Swing left leg forward—1. Return—2. Right—3, 4. Trunk held erect.
6. Side stride stand: Bend trunk left sideward and raise right arm sideupward—1. Return—2. Left arm—3, 4.
7. March in place (two minutes).
8. Raise arms forupward and inhale. Lower sidedownward and exhale.

GRADE III (twenty minutes):

1. Raise arms forupward—1. Return—2. Raise arms sideupward—3. Return—4.
2. Raise arms forward—1. Move arms sideward, raise chest and inhale—2. Return—3, 4.
3. Bend knees and raise arms sideward—1. Return—2.
4. Side stride stand: Hands on hips. Lower trunk forward—1. Return—2.

Fig. 18.—Grade V, Exercise 5.

7. Hike, ten minutes; slow, easy step.
8. Raise hands front of shoulders and inhale—1. Lower and exhale—2.

GRADE IV (twenty-five minutes):

1. Raise arms backward—1. Swing arms forupward—2. Return—3, 4.
2. Bend arms for thrust and lower head backward—1. Return—2.
3. Raise left leg forward and arms sideward—1. Return—2. Right—3, 4.
4. Side stride stand: Swing arms forupward—1. Bend trunk forward and touch floor—2. Return—3, 4.
5. Raise heels and raise arms sideupward—1. Bend knees, arms sideward—2. Return—3, 4.
6. Feet closed, arms sideward: Turn trunk left—1. Return—2. Right—3, 4.
7. Hike, fifteen minutes.

Fig. 20. — Grade VI, Exercise 1.

Fig. 21.—Grade VI, Exercise 2.

Fig. 22.—Grade VI, Exercise 3.

5. Arms bent for thrust: Swing left leg sideward—1. Return—2. Right—3, 4.

8. Hands front of shoulders: Straighten arms sideward, palms up and inhale—1. Return and exhale—2.

GRADE V (thirty-five minutes):

1. Feet closed, arms bent for thrust: Turn trunk left and thrust right arm forward—1. Return—2. Right—3, 4.
2. Arms bent for thrust: Straighten arms sideward, palms up, raise chest and inhale—1. Return—2.
3. Raise arms sideward and left leg forward—1. Move left leg backward and lower trunk one half forward—2. Return—3, 4.
4. Hands front of shoulders: Lower trunk one half forward and exhale—1. Raise trunk, raise arms sideward and inhale—2.

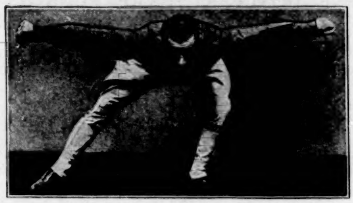


Fig. 23.—Grade VI, Exercise 4.

5. Arms bent for thrust: Lunge left and thrust sideward—1. Return—2. Right—3, 4.
6. Hands on hips: Turn trunk left—1. Bend trunk forward—2. Return—3, 4.
7. Run in place, twenty seconds. Breathing exercises. Repeat the run.
8. Raise arms forward and inhale. Lower sideward and exhale.

The free exercises cover about twenty minutes and should be taken in full time with brisk, snappy rhythm.

GRADE VI (sixty minutes):

1. Bend arms for thrust and place left foot backward—1. Lunge left sideward and thrust arms sideward—2. Return—3, 4.
2. Step left forward, raise arms sideward, raise chest and inhale—1. Return—2.
3. Raise left leg backward, hands front of shoulder—1. Lower trunk forward, arms sideward—2. Return—3, 4.
4. Lunge left sideward and bend arms for thrust—1. Thrust arms sideward and lower trunk forward—2. Return—3, 4.

Fig. 24.—Grade VI, Exercise 5.

5. Bend knee and place hands on floor—1. Support lying frontways—2. Bend arms—3. Return—4, 5, 6.
6. Side stride stand, hands on hips: Bend trunk forward—1. Circle trunk left—2. Backward—3. Right—4. Forward—5. Raise trunk—6. Repeat, with circle trunk right.
7. Run in place, one minute.
8. Raise arms forupward and inhale. Lower sidedownward and exhale.

Vigorous game, fifteen minutes. Games: Dodge ball, cage ball, volley ball, relay races, basket ball, tag games, etc.

Hike, twenty minutes. Part of hike in double time and rest in quick time. A swim may be substituted for part of hike.

The exercises are given each morning as outlined. Each afternoon, Grades I, II and III have fifteen minutes of exercises together, and Grades IV, V and VI have fifteen minutes exercises and fifteen minutes hike together.

ANTERIOR DISLOCATION OF ATLAS FOLLOWING TONSILLECTOMY

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This case is so unusual, both as to the etiology and the failure to recognize the condition for a long period, that it is well worth reporting.

REPORT OF CASE

A private, white, aged 22, a farmer before entering the Army, with negative family and past history, was admitted to one of the base hospitals, Dec. 19, 1917, suffering from measles and acute follicular tonsillitis. Tonsillectomy was performed, Jan. 16, 1918; the night of the operation the patient's neck suddenly became stiff, and had remained that way ever since.

He arrived at General Hospital No. 6, in July, 1918, and the following brief history accompanied him: "1. Complaint: Pain in neck, stiffness of cervical muscles which permits of very little motion of the head, except anterior-posteriorly, which motion is limited. 2. Search for focal infection: (*a*) Tonsils (fragments); (*b*) roentgen ray, ostearthritis, first and second cervical vertebrae; (*c*) teeth, abscess tooth; (*d*) Wassermann, negative; (*e*) genito-urinary, negative. 3. Treatment: (*a*) Tonsil fragments removed; (*b*) specimen from tonsil shows gram-negative diplococci; (*c*) tooth removed; (*d*) acetylsalicylic acid for pain, and sodium bicarbonate. Condition on dismissal: No improvement. Etiology: Probably of focal origin (tonsils)."

On arrival of the patient at this hospital, the general condition was good; the weight was normal; the neck was stiff, all motions being resisted in every direction; the soldier held his head in a rigid position with the chin depressed; he complained of pain in the cervical muscles on motion attempted in any direction; he could not rotate his head; he had persistent headaches. The general physical examination was negative except for exaggerated knee reflexes. The diagnosis was undetermined and the patient was sent to the roentgen laboratory for examination.

The roentgen findings were very positive. There was a simple, complete, anterior dislocation of the atlas and skull on the axis (epistropheus), unaccompanied by fracture. Stereoscopic plates showed the odontoid process (dens) free from any bony articulation and intact, the remaining part of the cervical spine being negative. The lateral masses of the atlas were no longer in contact with the superior articular processes of the axis. As the spinal cord must necessarily pass between the odontoid process of the axis and the anterior margin of the posterior arch of the atlas, it seems unreasonable to believe that it would be free from pressure in that small space in a complete anterior dislocation of the atlas, yet the patient had no symptoms of cord pressure. It appears quite evident that the transverse ligament of the atlas (the ligament that holds the odontoid process in contact with the anterior arch of the atlas) was ruptured, for it is hardly reasonable to suppose that the odontoid had slipped from under it. No evidence of ostearthritis was seen in any of the cervical vertebrae. Following the roentgen examination, the nasopharynx was palpated, and the anterior part of the atlas was very easily felt as a large, rounded, bony mass pressing forward and occupying a large part of the cavity.

The soldier was placed under ether anesthesia and manipulation attempted. A gain from 5 to 100 degrees in rotation was noted, and flexion, extension and lateral bending were practically normal. Following the anesthetic the neck

appeared more stiff than before, roentgen reexamination showing no change in the position of the parts. The soldier declined further manipulations or operation. Suspension of the entire body from the head was of no avail.

COMMENT

There are some very interesting points regarding this case:

1. *History.*—It seems unreasonable to believe that we have the correct history of the case. The tonsillectomy was done under local anesthesia (procain), and this trouble came on suddenly the night of the operation. I have corresponded with the base hospital from which the patient was sent. It is stated that there is no history of trauma, and the patient denies any himself.

Simple anterior dislocation of the atlas.

ANATOMIC POINTS NOTED ON A TRUE LATERAL PLATE OF CERVICAL REGION, OBSERVED IN SIMPLE ANTERIOR DISLOCATION OF THE ATLAS

NORMAL	DISLOCATED ATLAS
1. Posterior pharyngeal wall practically vertical.	1. Posterior pharyngeal wall markedly curved forward, anterior to atlas.
2. Anterior margin of anterior tubercle of atlas in line with anterior margin of body of axis.	2. Anterior tubercle on a more anterior level.
3. Lateral masses of atlas rest on superior articular processes of axis.	3. Lateral masses of atlas on a more anterior level.
4. Odontoid process in contact with anterior arch of atlas.	4. Odontoid process free.
5. Anterior margin of posterior tubercle of atlas on a plane posterior to anterior margin of spinous process of axis.	5. Anterior margin of posterior tubercle on a plane anterior to anterior margin of spinous process of axis.

2. *Error in Diagnosis.*—It is somewhat difficult to believe that such a gross condition as this would pass with a diagnosis of osteoarthritis for six months. If any one would have simply palpated or examined the nasopharynx, the condition would have been diagnosed at once. The failure to recognize early such a marked pathologic condition on the roentgen plate seems unpardonable, yet the patient states he was rayed about six times. However, this is the second case of anterior dislocation of the atlas I have observed that has not been recognized on the roentgenogram.

PNEUMONIA AT CAMP FUNSTON

REPORT TO THE SURGEON-GENERAL *

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THOMAS M. RIVERS, M.D. (BALTIMORE)
First Lieutenants, M. C., U. S. Army

CAMP PIKE, LITTLE ROCK, ARK.

This investigation of pneumonia made at the base hospital at Fort Riley includes all cases of pneumonia that have occurred between July 23 and Aug. 31, 1918, at Camp Funston, including Detention Camp No. 1 for white troops and Detention Camp No. 2 for colored troops, in the 311th Cavalry stationed at Fort Riley, at the base hospital, and at the Medical Officers' Training Camp.

During the period of the investigation there has been no large outbreak of pneumonia at Camp Funston. The average number of cases has been two a day, the total number studied being 62. The number of troops in the camp has been approximately 42,000, so that for the month of August the pneumonia rate has not exceeded 1.5 per thousand.

Pneumonia has been of mild type; there have been only three deaths, and empyema has occurred in one instance. The clinical diagnosis has been lobar pneumonia in fifty-five cases and bronchopneumonia in seven cases. The pneumonia observed here has presented no unusual clinical characters, and in the three cases in which necropsy has been performed, there has been lax consolidation of one or more lobes of the lungs.

Pneumonia of this period has in considerable part affected newly drafted negro troops from Southern states, namely, Louisiana and Mississippi. This pneumonia of newly drafted troops has presented characters that deserve special consideration. During our study, cases of pneumonia from two drafts of colored troops have been fairly numerous. In the period from June 19 to 23, 5,982 drafted colored men reached Camp Funston, and were sent to Detention Camp No. 2, located 5 miles from Camp Funston. They were held in detention camp two or three weeks, until assigned to units stationed at Camp Funston. Among these drafted men, between June 15 and August 31, sixty-nine cases of pneumonia have occurred. Among 12,000 white men drafted in June there has been only one case of pneumonia.

* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of Tables 3 and 13. The complete article will appear in the authors' reprints.

In July there was a similar outbreak of pneumonia in 5,997 newly drafted negroes. They were in great part from Mississippi, and entered Detention Camp No. 2 from July 16 to 20. The greater number of these men were transferred to Camp Funston after periods of from two to three weeks. Among them, in the period from their arrival to August 31, there have been twenty cases of pneumonia. Among 15,000 white troops drafted in July, from the 22d to 27th, eight developed pneumonia.

The incidence of pneumonia among troops in Camp Funston (Chart 1) from June 15 to August 31 is given in Table 1.

These figures suggest at first sight that pneumonia is much more common in colored than in white troops, but an analysis of the state of origin of newly drafted colored men shows that comparison is possible only between men from the same states (Table 2).

TABLE 2.—PNEUMONIA AMONG COLORED TROOPS ACCORDING TO STATES

Drafts of Colored Men by States:	No. of Troops	Pneumonia	
		No. of Cases	Per Thousand
June:			
Missouri	482	0	.00
Oklahoma	500	2	4.00
Louisiana	5,000	67	13.40
July:			
Kansas	1,009	0	.00
Missouri	988	0	.00
Mississippi	4,000	19	4.75
August:			
Nebraska	236	0	.00
Kansas	468	0	.00
Missouri	3,230	2	.62

Missouri, Kansas and Nebraska. It is evident that the white and colored drafts cannot be compared, since

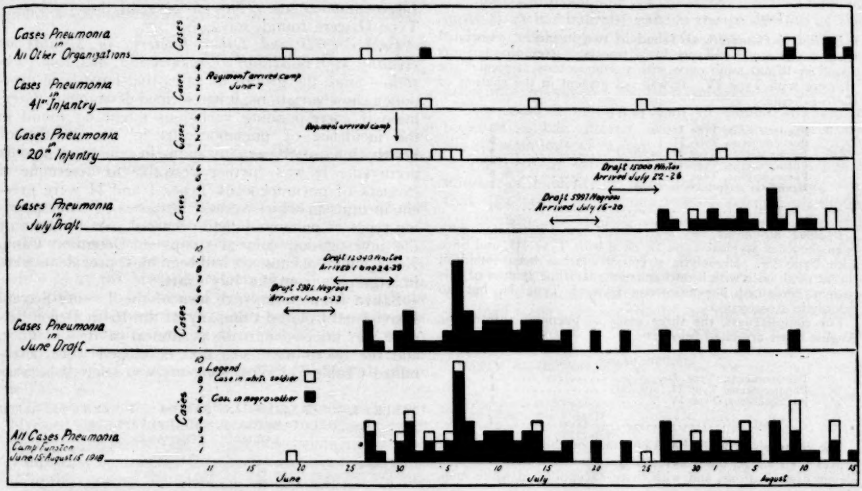

Cases Pneumonia in All Other Organizations
Cases Pneumonia in 41st Infantry
Regiment arrived camp June 7
Cases Pneumonia in 20th Infantry
Regiment arrived camp
Cases Pneumonia in July Draft
Draft 12000 Whites Arrived July 22-28
Draft 5997 Negroes Arrived July 16-20
Cases Pneumonia in June Draft
Draft 12,343 Whites Arrived June 24-29
Draft 5381 Negroes Arrived June 9-22
Legend
Case in white soldier
Case in negro soldier
All Cases Pneumonia Camp Funston June 15 to August 15 1918
Cases
June
July
August

Chart 1.—Pneumonia at Camp Funston, from June 15 to Aug. 15, 1918.

Figures for one draft are not comparable with those from another, because the periods of observation differ, and departure from the camp of units formed from

TABLE 1.—INCIDENCE OF PNEUMONIA AT CAMP FUNSTON

White	No. of Troops	Pneumonia	
		No. of Cases	Per Thousand
In Camp Funston prior to June 15..	14,198	7	0.49
20th Infantry, which arrived June 30	2,278	8	3.51
June draft	12,000	1	.08
July draft	15,000	8	.53
August draft	6,006	0	.00
Total	49,482	24	.48
Colored			
In Camp Funston prior to June 15..	1,700	4	2.35
June draft	5,982	69	11.53
July draft	5,997	19	3.17
August draft	3,934	2	0.51
Total	17,613	94	5.34

different drafts modifies the exact accuracy of the figures for each draft; but these factors will not alter the relations indicated in the table. Pneumonia has been common in negro drafts from different states in the order of their geographic location from south to north, namely, Louisiana, Mississippi (factor of time prevents comparison of these two states), Oklahoma, none of the white troops came from Louisiana and Mississippi.

BACTERIOLOGIC STUDY OF PNEUMONIA

In view of the selective occurrence of pneumonia in newly drafted colored troops from Louisiana and Mississippi, it is important to know the etiologic factors concerned in the production of the pneumonia that has occurred. Bacteriologic study has been made of the sputum of all pneumonia patients entering the base hospital between July 23 and August 31 (Table 3). White mice have been inoculated intraperitoneally with sputum, and the Avery method for identification of pneumococci has been used. Cultures from throat swabs have been examined.

The incidence of pneumococcus, *Streptococcus hemolyticus* and *Bacillus influenzae* in the sputum of newly drafted negroes is given in Table 4. The observations made on the June draft are almost wholly limited to colored men from Louisiana, exceptions being one case from Mississippi and one from Okla-

homa; observations for the July draft are on negroes from Mississippi.

With pneumonia of drafted colored men from Louisiana and Mississippi, organisms which are frequently found in the mouths of normal individuals, namely, pneumococcus IV, III and Atypical II, have been found in twenty-five of thirty-five cases, that is, in 71 per cent. No pneumococci of Type II were found. In contrast to this relation, the distribution of various pneumococcus types among pneumonia patients from a variety of organizations located at or near Camp Funston has closely approximated that of civil life, Types I and II constituting the greater number of cases. Among these miscellaneous cases of pneumonia, the percentage of mouth types has been only 37.5 per cent., in sharp contrast with that found in the pneumonia among newly drafted Southern negroes. Of eight white men with pneumonia from the July draft (four from Missouri and four from Kansas), four (50 per cent.) had pneumococcus Type I, two Type II (25 per cent.), and two Type IV (25 per cent.).

TABLE 4.—ORGANISMS IN SPUTUM OF NEWLY DRAFTED NEGROES

JUNE DRAFT

Pneumococcus, Type I	6
Pneumococcus, Type II	0
Pneumococcus, Type II, atypical	3
Pneumococcus, Type III	1
Pneumococcus, Type IV	5
Hemolytic streptococcus alone	0
Total	15

Bacillus influenzae was found in two instances, associated with pneumococcus Type I. Hemolytic streptococcus was found in throat swab once with pneumococcus atypical Type II, once with Type IV. It was not present in the sputum of these patients.

JULY DRAFT

Pneumococcus, Type I	3
Pneumococcus, Type II	0
Pneumococcus, Type II, atypical	4
Pneumococcus, Type III	4
Pneumococcus, Type IV	8
Hemolytic streptococcus alone	1
Total	20

Bacillus influenzae has been found once, associated with pneumococcus atypical Type II, once with Type III, and once with Type IV. Hemolytic streptococcus has been found in throat swab once with bronchopneumonia. The sputum of this patient contained pneumococcus atypical Type II, but no hemolytic streptococci.

For completeness, the three cases of pneumonia from the August draft are cited below:

AUGUST DRAFT

Pneumococcus, Type I	1
Pneumococcus, Type II, atypical	1
Pneumococcus, Type IV	1
Total	3

For comparison with the pneumonia of the June and July drafts cited above, other cases of pneumonia scattered among eleven organizations, and with three exceptions in white men, are summarized below.

From eleven organizations at or near Camp Funston:

Pneumococcus, Type I	9
Pneumococcus, Type II	5
Pneumococcus, Type II, atypical	0
Pneumococcus, Type III	1
Pneumococcus, Type IV	8
Hemolytic streptococcus alone	1
Total	24

Bacillus influenzae has been found once in association with pneumococcus Type II and twice with Type IV. Hemolytic streptococci have been found in throat swab once with Type I (also in sputum), once with Type III, and once with Type IV.

It is noteworthy that two of the small number of cases of Type I pneumonia among Louisiana negroes, and two among Mississippi negroes, occurred in one small unit, namely, the Twenty-Second Provisional Company of the 164th Depot Brigade, a body containing 250 men. It seems not improbable that the members of this company were brought into contact with Type I pneumococcus after formation of the company. An examination of the saliva of twenty-five healthy members of this company disclosed one man who harbored in his mouth pneumococcus Type I.

Among sixty-two cases of pneumonia, pneumococcus Type II was found only five times. It is noteworthy that two of these four instances of Type II occurred in a small body of enlisted men of the Medical Officers' Training Camp in Quarters 4 M, consisting of a group of tents. The onset of the second of these cases was on August 17. August 22 the saliva of thirty-two men then in these quarters was examined for penumococcus. No carriers of pneumococcus Type II were found.

Pneumococci and Other Bacteria in Mouths of Healthy Men in Military Organizations at Camp Funston.—Since the groups of cases that have been mentioned show variations, it has seemed desirable to determine if corresponding variations might be found in the incidence of pneumococcus in the mouths of healthy men of the organizations in which pneumonia occurred. It was further desirable to determine if carriers of pneumococcus Types I and II were present in units in which several instances of corresponding types of pneumonia had occurred. At the time of the investigation colored troops in Detention Camp No. 2, where pneumonia had been most prevalent, were in large part from the July draft.

Saliva from twenty-five men of the Twenty-Second Provisional Colored Company of the 164th Depot Brigade was injected into the peritoneal cavities of mice, and the micro-organisms that developed were determined (Table 5). This company was selected because four instances of pneumonia, due to pneumococcus Type I, had occurred in it.

TABLE 5.—ORGANISMS IN SALIVA OF MEN OF 164TH DEPOT BRIGADE, 22D PROVISIONAL COLORED COMPANY

	Number	Per Cent.
Pneumococcus, Type I	1	4
Pneumococcus, Type II	0	0
Pneumococcus, Type II, atypical	1	4
Pneumococcus, Type III	2	8
Pneumococcus, Type IV	13	52
No pneumococci found	8	32
Total	25	

Bacillus influenzae was found six times, and *Streptococcus hemolyticus* once.

Since twelve of our cases of pneumonia occurred in the Third Development Battalion, an organization in which colored men partially disqualified for military service are given training, this organization was next selected for study. The saliva of twenty-five men from Company D was examined, with the result given in Table 6.

For comparison with the observations made on colored organizations, saliva from twenty-five white men was tested (Table 7). The Seventieth Infantry was selected because no pneumonia had occurred in this organization within the period of our observation.

Examination of the records of the hospital showed that the man from whom pneumococcus Type I was

obtained had been admitted to the base hospital, May 27, 1918, and returned to duty, July 10, five weeks before examination of the saliva. While in the hospital he suffered with acute bilateral suppurative otitis media and pyorrhea alveolaris; tonsillectomy was performed.

The saliva of twenty-seven men from the 210th Engineers, a white regiment in which no pneumonia had occurred during our study, was examined, with the results given in Table 8.

TABLE 6.—ORGANISMS IN SALIVA FROM MEN OF THIRD DEVELOPMENT BATTALION, CO. D

	Number	Per Cent.
Pneumococcus, Type I	0	0
Pneumococcus, Type II	0	0
Pneumococcus, Type II, atypical	3	12
Pneumococcus, Type III	3	12
Pneumococcus, Type IV	6	24
No pneumococci found	13	52
Total	25	

Bacillus influenzae was found eleven times. *Streptococcus hemolyticus* five times, and *Bacillus mucosus-capsulatus* twice.

TABLE 7.—ORGANISMS IN SALIVA OF MEN OF SEVENTIETH INFANTRY

	Number	Per Cent.
Pneumococcus, Type I	1	4
Pneumococcus, Type II	0	0
Pneumococcus, Type II, atypical	1	4
Pneumococcus, Type III	1	4
Pneumococcus, Type IV	15	60
No pneumococci found	7	28
Total	25	

Bacillus influenzae was found eleven times, and *Streptococcus hemolyticus* twice.

In view of the occurrence of two cases of pneumonia associated with pneumococcus Type II, in Quarters 4 M of the Medical Officers' Training Camp, five days after the admission of the second of these patients with Type II pneumonia to the hospital, search was made for pneumococci in the mouths of thirty-two men from the squad occupying these quarters. The examination of these normal men had the result given in Table 9.

The observations indicate that approximately two thirds of the men in the organizations examined harbor pneumococci, with few exceptions belonging to the groups that have heretofore been found in the mouths of healthy men. In view of the uniformity of the results obtained, the examinations were discontinued.

The high incidence of *Bacillus influenzae* in the mouths of healthy men is noteworthy. It serves as a basis for comparison with conditions such as influenza, bronchitis, and other diseases of the respiratory passages. Its significance in relation to the existence of an epidemic of influenza in this camp during March, April and May cannot be determined.

COMMENT

The foregoing study has shown that lobar pneumonia caused by pneumococcus has occurred with unusual frequency among negroes drafted from Louisiana and Mississippi. The types of pneumococcus concerned are in great part those that occur in the mouths of healthy individuals, namely, Atypical Type II, Type III and Type IV. Type I has been less frequent than with the pneumonia of civil life, and Type II has not been found in this group of cases. Predominance of mouth types has been more conspicuous in the more recently drafted troops from Mississippi.

To explain the occurrence of this pneumonia of newly drafted men, two groups of factors may be considered: First, conditions that depress resistance, such as exposure to cold or wet, exposure to dust, fatigue from the unusual exertions of military training, and the reaction from typhoid-paratyphoid inoculation. Second, conditions that favor transmission of various respiratory infections, when large numbers of men are brought into intimate contact with one another.

We have obtained no evidence that these negro drafts which have developed pneumonia have been exposed to cold or wet during transportation to the camp, or after their arrival. Organizations in which pneumonia has prevailed have not been exposed to dust in greater degree than those which have been relatively free from it. Negro troops at Detention Camp No. 2 have not been required to perform prolonged or severe drill; their work has not been heavier than that of white troops.

There is little support for the suggestion that typhoid inoculation has had any part in the production of the disease. Although white drafts and colored drafts, both from Missouri and Kansas, and from Mississippi and Louisiana, have all been subjected to the same procedure, pneumonia has been conspicuously selective.

The small number of cases of pneumonia under observation has offered scant opportunity to study the epidemiology of various types classified with regard to the type of infecting pneumococcus. The small amount of evidence at hand tends to favor the view that susceptible individuals from far Southern states are brought into intimate contact, perhaps for the first time, with types of pneumococci capable of producing in them lobar pneumonia. These types are at first widely distributed pneumococci, such as frequently occur in the mouths of normal individuals. We have obtained some evidence to support the view that introduction of Type I pneumococcus into a group of drafted Southern negroes is followed by pneumonia referable to this organism. Four of the nine cases of Type I pneumonia occurred in the Twenty-Second Provisional Company of the 164th Depot Brigade, and examination of twenty-five healthy men from this company disclosed one carrier. The absence of Type II pneumonia among drafted negroes from Louisiana and

TABLE 8.—ORGANISMS IN SALIVA OF MEN OF 210TH ENGINEERS

	Number	Per Cent.
Pneumococcus, Type I	0	0.0
Pneumococcus, Type II	0	0.0
Pneumococcus, Type II, atypical	1	3.7
Pneumococcus, Type III	1	3.7
Pneumococcus, Type IV	14	51.9
No pneumococci found	11	40.7
Total	27	

Bacillus influenzae was found three times, *Streptococcus hemolyticus* once, and *Bacillus mucosus-capsulatus* once.

TABLE 9.—ORGANISMS IN MOUTHS OF MEN FROM QUARTERS 4 M, MEDICAL OFFICERS' TRAINING CAMP

	Number	Per Cent.
Pneumococcus, Type I	0	0.0
Pneumococcus, Type II	0	0.0
Pneumococcus, Type II, atypical	1	3.1
Pneumococcus, Type III	2	6.3
Pneumococcus, Type IV	21	65.6
No pneumococci found	8	25.0
Total	32	

Bacillus influenzae was found sixteen times, *Streptococcus hemolyticus* twice, and *Bacillus mucosus-capsulatus* four times. No carriers of pneumococcus Type II were found.

Mississippi indicates that they had not come into contact with the corresponding pneumococcus.

HEMOLYTIC STREPTOCOCCI

Among the cases of pneumonia that we have studied, hemolyzing streptococci have had an insignificant part. There have been only two cases of pneumonia in which the result of bacteriologic examination has suggested that this organism was concerned in the production of the disease. There has been no evidence that streptococci have produced complications during the course of pneumonia caused by pneumococci. During the period of our study, 112 patients with measles have been admitted to the base hospital at Fort Riley. There has been no instance of associated pneumonia, and otitis media, the sole complication, has occurred in only two instances. In both cases, staphylococci were obtained from the discharge.

Hemolytic Streptococci in the Throats of Healthy Men.—Observations on the occurrence of hemolytic streptococci in the mouths of normal men and of patients with measles and with pneumonia have been made here in order to explain, if possible, the infrequency of those respiratory complications due to streptococci which have greatly increased the severity of measles in some other camps.

In swabbing the throat the attempt was made to produce gagging. The swab was then quickly touched to both tonsils and lastly to the pharynx. The swab was introduced into a tube containing broth, and freely twirled. The broth tube was brought to the laboratory, and melted agar-agar containing 5 per cent. of defibrinated horse blood was inoculated with a loopful of the broth and poured into a Petri plate. A second loopful of the broth was streaked over the surface of one half of the plate, when solidified. Hemolytic streptococci were identified by the methods for the isolation and identification of *Streptococcus hemolyticus* adopted by the Medical Department of the Army.

The throats of 274 men on duty have been examined in the organizations listed in Table 10.

TABLE 10.—INCIDENCE OF HEMOLYTIC STREPTOCOCCI

White men:	Number Examined	Hemolytic Streptococci Present	Per Cent. with Hemolytic Streptococci
70th Infantry	24	4	16.7
210th Engineers, Co. C	26	6	23.1
164th Depot Brigade, Co. 15	50	10	20.0
164th Depot Brigade, Co. 18	51	13	25.5
164th Depot Brigade, Co. 28	50	13	26.0
Total	201	46	22.9
Colored men, all from Detention Camp No. 2:			
164th Depot Brigade, Prov. Co. 22	25	6	24
3d Development Bn., Co. A	24	3	12.5
3d Development Bn., Co. D	24	5	20.8
Total	73	14	19.2
Men resident in the hospital:			
Laboratory workers	10	3	30.0
Patients in surgical ward	14	4	28.6
Total	24	7	29.2

The figures cited indicate that one in four or five of healthy men in this camp harbor hemolytic streptococci, and this proportion is not materially influenced by residence in the hospital.

Hemolytic Streptococci with Measles.—In view of the foregoing observation, it was surprising to find that hemolytic streptococci were present in only three of 112 measles patients at the time of their admission to the hospital. The hospital routine for measles is as follows: After a throat swab has been made, the throat is gargled with 20 per cent. argyrol, and sprayed with argyrol three times a day. The same solution is dropped into the conjunctival sac to relieve discomfort caused by conjunctivitis. Patients in bed are separated by sheets. Convalescent patients are not strictly segregated, and assist in the care of patients in bed. Face masks are not worn. Hemolytic streptococcus carriers remain in the ward. Eating utensils are sterilized. Complications due to streptococcus have not been present during the period of our investigation.

The incidence of hemolytic streptococci in the throats of patients with measles (Table 11A), was very small

TABLE 11.—HEMOLYTIC STREPTOCOCCI WITH MEASLES AT CAMP FUNSTON

A. ALL MEASLES PATIENTS ADMITTED TO THE WARDS

	Days in Hospital	Approximate Day of Disease	No. of Patients Swabbed	Number with Hemolytic Strepto-cocci	Per Cent. with Hemolytic Strepto-cocci
First swabbing	0 to 1	1 to 8	112	3	2.67
Second swabbing.	3 to 10	4 to 16	86	11	12.79
Third swabbing.	8 to 23	12 to 26	58	14	24.14

The first swabbing represents the findings on admission, in the series of 112 cases; 86 patients were swabbed twice; 58 patients were swabbed three times.

B. HEMOLYTIC STREPTOCOCCI WITH MEASLES IN 164TH DEPOT BRIGADE, COMPANY 28

	Days in Hospital	No. of Those Swabbed	Number with Hemolytic Streptococci	Per Cent. with Hemolytic Streptococci
First swabbing	0 to 1	23	0	0
Second swabbing	3 to 9	23	4*	17.39
Third swabbing	10 to 21	21	4	19.05
Normal men of Co. 28		50	13	26.00

* Two cases positive for hemolytic streptococci on this swabbing were negative on subsequent swabbing.

This is a comparison of the percentage of carriers among patients with measles spending less than ten days in the hospital, and that of patients spending more than ten days in the hospital; it also compares the percentage of carriers among the convalescents from measles and that among the normal men on active duty in the same company.

C. HEMOLYTIC STREPTOCOCCI WITH MEASLES IN SEVENTIETH INFANTRY

First swabbing	0 to 1	38	0	0
Second swabbing	5 to 9	25	1	4.0
Third swabbing	8 to 17	12	2	16.7
Normals on duty with 70th Inf.		24	4	16.7

This represents a series of 38 cases of measles from the 70th Infantry and the findings on admission. It shows that 25 patients were swabbed twice, with the results of the second swabbing made after from 5 to 9 days in the hospital; it shows that 12 patients were swabbed three times, and the findings on third swabbing after from 8 to 17 days in the hospital. A series of normals from the same organization is introduced for comparison.

on admission, but later on in the disease gradually increased. On admission to the hospital only three of 112 patients with measles harbored hemolytic streptococci. In a period from the third to the tenth day in the hospital, eighty-six patients were reswabbed and hemolytic streptococci were found in eleven (12.8 per cent.); between the eighth and the twenty-third day, fifty-eight were swabbed a third time, and fourteen (24.1 per cent.) were found to carry the organism.

Comparison of these figures for measles with those for normal men suggests the possibility that hemolytic streptococci temporarily disappear from the throat during the early stage of measles, at a time when the rash is present. During the period of our study, an outbreak of measles occurred in the Twenty-Eighth Company of the 164th Depot Brigade; twenty-three patients from this company were admitted to the hospital (Table 11B). On admission, throat swabs dis-

closed no carriers of hemolytic streptococcus, yet subsequent examinations, made between the third and the ninth day after admission, demonstrated that four of twenty-three patients (17.4 per cent.) harbored hemolytic streptococci; between the tenth and twenty-first days, four of twenty-one patients examined (19.1 per cent.) were found to be carriers of the organism. The throats of fifty healthy men in Company 28 were examined, and 26 per cent., a figure closely approximating that obtained for other organizations, were found to contain hemolytic streptococci.

From various companies of the Seventieth Infantry, thirty-eight patients with measles were admitted to the hospital (Table 11C), and no hemolytic streptococci were found in admission. Subsequently hemolytic streptococci were obtained from the throats of one of twenty-five men examined from the fifth to the ninth day of their stay in the hospital, and among twelve examined from the eighth to the seventeenth day, hemolytic streptococci were found in two (16.7 per cent.). Many of these cases of measles occurred late in August, and could not be followed throughout their stay in the hospital. From various companies of the Seventieth Infantry, twenty-four men on duty were examined, and four (16.7 per cent.) were found to harbor hemolytic streptococci. The observations made on these two organizations furnish further evidence that hemolytic streptococci have temporarily disappeared from the throats of men attacked by measles.

Hemolytic Streptococci with Pneumonia.—Throat swabs were made from sixty-one cases of pneumonia. In eight, hemolytic streptococci were found; in two instances of bronchopneumonia, hemolytic streptococci, but no pneumococci, were found in the sputum, and there is little doubt that pneumonia was caused by hemolytic streptococci. In one instance, hemolytic streptococci were found in the sputum but not in the throat swab. It is noteworthy that the proportion of patients with pneumonia harboring hemolytic streptococci, 14.8 per cent., is less than that of the normal men.

BACTERIOLOGY OF BRONCHITIS

With the purpose of determining what micro-organisms are associated with bronchitis, and the possible relation of this disease to bronchopneumonia, throat swabs were made in the small number of cases, namely, thirteen, available for study, and at the same time sputum was injected into mice. The results of bacteriologic examinations are given in Table 12.

TABLE 12.—BACTERIOLOGIC FINDINGS IN BRONCHITIS

	Throat Swab	Sputum
1.	Negative	B. influenzae and Pneumococcus IV
2.	Hemolytic streptococcus	No examination
3.	Hemolytic streptococcus	No examination
4.	Negative	Pneumococcus IV
5.	Hemolytic streptococcus	Pneumococcus IV
6.	Negative	B. influenzae and Pneumococcus IV
7.	Hemolytic streptococcus	No examination
8.	Negative	B. influenzae and Pneumococcus IV
9.	Negative	B. influenzae and Pneumococcus IV
10.	Negative	B. influenzae and Pneumococcus IV
11.	Negative	B. influenzae and Pneumococcus II atypical
12.	Negative	Pneumococcus IV
13.	Negative	B. influenzae and Pneumococcus IV

Pneumococcus Type IV or in one instance Atypical Type II was found in all cases in which the sputum was examined. In four of thirteen cases (30.7 per cent.) hemolytic streptococci were found. This proportion, uncertain by reason of the small number of cases, is greater than that found in Camp Funston among normal men.

Bacillus influenzae was found in seven of thirteen cases of bronchitis, that is, in 53.8 per cent. of the cases examined and in 70 per cent. of those examined by mouse inoculation. The highest percentage of incidence of *Bacillus influenzae* in any group of normal men was 50 per cent. in men from Quarters 4 M, Medical Officers' Training Camp, examined by mouse inoculation. In cases of bronchitis with *Bacillus influenzae* and in one case with *Streptococcus hemolyticus* these organisms were associated with pneumococci.

It is significant that either hemolytic streptococci or *Bacillus influenzae* was found in all but two of thirteen cases of bronchitis. Even should we assume that none of these organisms is the primary cause of the disease, it is probable that their multiplication and doubtless their invasion of the lower respiratory passages has occurred with it.

There has been no opportunity to study the bacteriologic flora of the throat or of the sputum of patients suffering with cases diagnosed as influenza.

HISTORY OF PNEUMONIA AT CAMP FUNSTON

It has seemed to us desirable to obtain an insight into the history of pneumonia at the camp since its organization so that we might determine what types of pneumonia have occurred and what relation they bear to the outbreak that we have observed. Through the cordial cooperation of the officers of the hospital, we have tabulated from the records the incidence of pneumonia from the establishment of Camp Funston in August, 1917, up to the present date, Aug. 31, 1918. Chart 2 shows changes in the incidence of pneumonia. Primary pneumonia, pneumonia secondary to measles and a very small group of pneumonias definitely secondary to scarlet fever, diphtheria, mumps and surgical operations have been charted separately.

To obtain further insight into the relationship of pneumonia to other diseases, conditions affecting the air passages have been charted, namely, bronchitis and a disease that has been designated "influenza."

From Sept. 20, 1917, to November 8, with an increasing number of newly recruited troops in the camp, there was a gradual increase in the number of cases of pneumonia. Subsequently with slight fluctuation, there has been a continuous incidence of from one to five or even more cases per day, interrupted at only one time, namely, from May 26 to June 26, 1918, when pneumonia well-nigh disappeared. This relatively steady incidence has been twice augmented by sharply defined outbreaks of pneumonia, namely, (1) between November 8 and December 25, when cases of pneumonia following measles occurred in large number, and (2) between March 1 and May, 26, 1918, when there was a far greater number of cases of pneumonia occurring in very accurate conformity with an outbreak of influenza.

Outbreak of Pneumonia Due to Measles from Nov. 8 to Dec. 25, 1917.—By its relation to measles, this group of cases is sharply defined. Pneumonia was designated bronchopneumonia in ninety-two cases (78.6 per cent.) and lobar pneumonia in twenty-five cases (21.4 per cent.). It was associated with a high incidence of empyema and a mortality of 45.3 per cent. The disease doubtless exhibited close similarity with the pneumonia following measles studied elsewhere.

Outbreak of Pneumonia Occurring in Association with Influenza Between March 1 and May 26, 1918.—Before considering this subject, it is desirable to describe the disease which has been diagnosed influenza, which prevailed continuously since the establishment of the camp, and which within a few days swept as a great epidemic through Camp Funston. The disease, save in very mild cases, was accompanied by fever with elevation of temperature to from 99 to 102 or 103 F. The patient was prostrated, had severe headache, and complained of aching pains in the muscles of the back of the neck, of the lumbar region and at times of the arms or legs. Only a few patients had coryza; and cough, with other evidence of bronchitis, was unusual. With physical signs of bronchitis this diagnosis was added to that of influenza. At the beginning of the outbreak of the disease some patients were sent to the meningitis ward as suspects on account of headache and pain in the back of the neck. Some patients had abdominal pain and were first sent to the surgical ward. Later it became evident that there were no characteristic physical signs associated with the disease. After from twenty-four to forty-eight hours the temperature fell and the patient felt better.

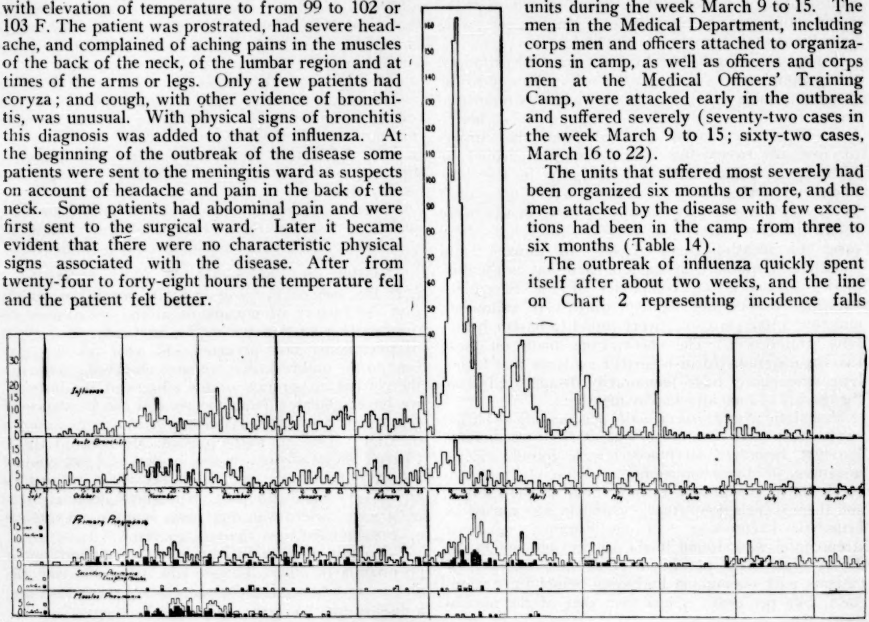


Chart 2.—Respiratory diseases at Camp Funston: admissions to base hospital from pneumonia, influenza, and acute bronchitis by days from Sept. 20, 1917, to Aug. 20, 1918.

Between March 4 and March 29, 1,127 men from Camp Funston, which then contained 29,000 men, were sent to the base hospital with the disease just described, and many more were cared for in the infirmaries of the camp. A dust storm occurred, Saturday, March 9, and on Monday, March 11, 107 patients with "influenza" were admitted to the hospital; from the 342d Field Artillery alone thirty-eight enlisted men and six officers were admitted. This explosive outbreak is well shown on the chart. The ascent of the line representing incidence of the disease before March 9 gives little support to the view held by many who observed the outbreak, that the dust storm was responsible for it.

Table 13 shows the incidence of influenza in various organizations. The first units attacked by the outbreak in March were the 164th Depot Brigade (white) with fourteen cases in the week March 2 to 8, eighteen cases, March 9 to 15, and seventy-seven cases, March 15 to 22; and the 317 Headquarters Trains of the Ninety-Second Division, in which thirteen cases occurred on March 8 and forty-nine additional cases in the following week. The 342d Field Artillery was attacked early; it had suffered with the disease more severely than other units in the camp during the entire time since the organization of the camp in September. From this regiment, 163 patients were admitted to the hospital during the week March 9 to 15, but in the subsequent weeks there were few cases.

Every organization in the camp except the 314th Engineers and 341st Artillery was attacked; only five patients were admitted to the hospital from these two units during the week March 9 to 15. The men in the Medical Department, including corps men and officers attached to organizations in camp, as well as officers and corps men at the Medical Officers' Training Camp, were attacked early in the outbreak and suffered severely (seventy-two cases in the week March 9 to 15; sixty-two cases, March 16 to 22).

The units that suffered most severely had been organized six months or more, and the men attacked by the disease with few exceptions had been in the camp from three to six months (Table 14).

The outbreak of influenza quickly spent itself after about two weeks, and the line on Chart 2 representing incidence falls as suddenly as it rose. The disease did not disappear, but the daily incidence was not much in excess of that prior to the outbreak. Later at intervals of somewhat less than one month, a second, a third and even a fourth and fifth wave of the disease is represented in the admissions to the hospital. Each is less severe than the one preceding. The second wave, beginning April 3, reached a maximum on April 8, twenty-five days after that of the primary outbreak, and then quickly disappeared within ten days after its onset. It was almost wholly confined to the 164th Depot Brigade and affected with few exceptions white and colored drafts which had arrived at the camp four or five days before the onset of the disease.

The third wave of influenza began April 28 and reached a maximum on May 3, twenty-six days after that of the second. This outbreak occurred in a group of recently drafted white men in the Depot Brigade. They were attacked one or two days after their arrival. The outbreak lasted about two weeks.

A fourth insignificant outbreak is represented by a group of twenty-seven cases which occurred from May 30 to June 1 in a group of drafted white men who had

been in camp eight days. These cases occurred several days after the drafted men had been attached to the Fortieth Infantry. June 25, a few more cases occurred in colored men drafted from five to eight days.

This disease having the characteristics commonly attributed to influenza is not one marked by characteristic symptoms. In the presence of an outbreak, such as that just described, there can be no doubt concerning its identity, even in the absence of bacteriologic studies. It seems probable that occasional cases are recognized with much less certainty. Nevertheless, there is a remarkable similarity between the curve representing the incidence of influenza and that representing primary pneumonia, and to a less degree that representing bronchitis from the establishment of the camp to the present date. There had been a continued fairly high but fluctuating incidence of all three diseases until March of the present year. It is significant that the greatest incidence of pneumonia affecting troops in this camp occurred from March 9 to March 29, coincident and immediately following the first outburst of influenza, the maximum for pneumonia being five days after the maximum for influenza. Coincident with the two subsequent waves of influenza there were corresponding exacerbations in the incidence of pneumonia, the maximal points for influenza and pneumonia being almost coincident on April 7 to 8 and again on May 5 to 6; but in general, pneumonia has lagged behind influenza. The coincidence of influenza and pneumonia is further emphasized by the almost complete disappearance of the two diseases in the period from June 3 to 26 and their subsequent reappearance at the end of June and again to a slight extent in July.

To obtain further evidence of the relation of the outbreak of pneumonia to that of influenza, incidence of the two diseases in the organizations attacked has been compared (Table 13). With each wavelike outbreak of influenza there has been a similar outbreak of pneumonia, limited almost entirely to the organizations that had suffered with influenza. Following the first outbreak of influenza, which attacked both old and new organizations, there was a similar widely scattered prevalence of pneumonia. The organizations that suffered most severely were the 164th Depot Brigade, the Medical Department and the 317th Headquarters Trains of the Ninety-Second Division and the 314th Trains (white). These organizations had all suffered very severely with influenza. Organizations which showed the highest incidence of bronchitis were the same as those which suffered most severely with influenza, namely the Depot Brigade (white), the Medical Department, the 342d Field Artillery and the 317th Trains (colored) of the Ninety-Second Division and the 314th Trains (white).

Accompanying the second wave of influenza, which attacked white and colored drafts of the 164th Depot Brigade and reached its maximum on April 8, there was an outbreak of pneumonia limited to the white and colored sections of the draft organization.

Accompanying the third wave of influenza, which was in part limited to the white drafts of the 164th Depot Brigade, the corresponding outbreak of pneumonia was almost exclusively in the same organization.

The epidemic of influenza first attacked the organizations which had been at Camp Funston during six months or more. It seems to have infected all susceptible individuals and to have thus spent itself. Subsequent waves of influenza occurred when newly drafted men were brought into the camp in April and again in May. Table 14 shows that pneumonia, like influenza, during the primary epidemic of March, attacked in great part men resident several months in the camp; 83.1 per cent. of those attacked by influenza and 72.2 per cent. of those attacked by pneumonia had been in camp more than three months. The pneumonia of April, like the influenza which it followed, was in great part in men who had been in the camp a short time. Only 16.5 per cent. of those with influenza, and 18.2 per cent. of those with pneumonia, had been in the camp more than three months, whereas 70.2 per cent. with influenza and 59.6 per cent. with pneumonia had been in the camp less than one month.

TABLE 14.—LENGTH OF SERVICE OF PATIENTS WITH INFLUENZA, PNEUMONIA AND ACUTE BRONCHITIS

	Under 1 Month		1-3 Months		Over 3 Months		Total
	Cases	Per Cent.	Cases	Per Cent.	Cases	Per Cent.	Cases
Influenza:							
March	95	8.2	92	7.9	969	83.9	1,156
April	255	70.2	49	13.4	60	16.5	364
May	140	66.8	36	17.1	34	16.1	210
Pneumonia:							
March	37	15.5	29	12.2	172	72.2	238
April	59	59.6	22	22.2	18	18.2	99
May	27	29.3	44	47.8	21	22.8	92
Acute Bronchitis:							
March	29	14.8	32	16.3	135	68.9	196
April	31	27.8	26	31.7	25	30.5	82
May	38	33.9	45	40.2	29	25.9	112

In May the figures representing the duration of residence in camp of those with pneumonia do not show the same close agreement with the figures representing influenza that is exhibited by the corresponding figures for April. The majority of cases of influenza occurred during the first month in camp, whereas the majority of cases of pneumonia occurred in the period between one and three months after arrival in camp.

The records of the hospital indicate that the pneumonia which accompanied influenza was lobar pneumonia and not bronchopneumonia. During the prevalence of pneumonia following measles in November and December, 1917, 21.4 per cent. of the cases of measles pneumonia were classified as lobar, and 78.6 per cent. as bronchopneumonia. Deaths occurred in 45.3 per cent. of the cases. Table 15 shows the distribution of lobar and bronchopneumonia and the percentage of deaths in the months of March, April and May.

The relatively low mortality of this outbreak of lobar pneumonia is in contrast with the higher mortality of the bronchopneumonia of measles. It is not possible to state what micro-organisms were concerned in the production of the lobar pneumonia following influenza, but it seems improbable that it was the hemolytic streptococcus which produces the fatal bronchopneumonia of measles. It is noteworthy that the fatality of pneumonia diminished during the outbreaks of April and May.

TABLE 15.—PNEUMONIA IN MARCH, APRIL AND MAY

	Lobar Pneumonia		Bronchopneumonia		Mortality	
	No. Cases	Per Cent.	No. Cases	Per Cent.	No. Deaths	Per Cent.
March	223	93.7	15	6.3	48	20.2
April	92	92.9	7	7.1	16	16.2
May	90	97.9	2	2.1	13	14.1

SUMMARY

Pneumonia which has occurred at Camp Funston since the establishment of the camp may thus be classified:

1. Pneumonia of a relatively stationary camp population. It resembles the pneumonia of civil life, and

has been characterized by the presence of a predominant proportion of pneumococci of Types I and II during the period of our study.

2. Pneumonia of newly drafted colored men from Southern states. This has been of mild type, with a low rate of mortality and few complications. It has been associated during the period of our study with a high proportion of those types of pneumococci which occur in the mouths of healthy men. Pneumococci Type II have not been found; Type I has occurred in great part in one company of men. It is not improbable that the incidence of various types is dependent on exposure of susceptible men to those types which are disseminated when drafts have been recently assembled.

3. Pneumonia following influenza. In March an epidemic of influenza swept through Camp Funston and quickly spent itself, presumably by the infection of all susceptible men. In April there was a second wave of influenza and in May, a third, almost wholly limited to newly drafted men brought into the camp a short time before these outbreaks. Corresponding to each of these three outbreaks of influenza, there was a period of greatly increased incidence of pneumonia and bronchitis. These diseases, in many instances, were associated with influenza. They were prevalent in the organizations attacked by influenza, and maintained the same relation to the length of service of the men affected; that is, men who had been in the Army several months were attacked in the first outbreak, whereas the second and third outbreaks of pneumonia occurred in great part in newly drafted men. The pneumonia associated with influenza was in most instances lobar pneumonia, and was followed by a relatively low rate of mortality (from 14 to 20 per cent.). With the information available, it is not possible to draw a sharp line between (1) the pneumonia of the stable camp population, (2) the pneumonia of the newly drafted Southern troops, and (3) the pneumonia following influenza. It is possible that influenza, in a greater or less degree, also acts as a predisposing factor in the production of the first and second varieties.

4. Pneumonia with measles. In November and December, 1917, there was an outbreak of pneumonia accompanying measles. The disease was predominantly bronchopneumonia, and the rate of mortality was very high (45 per cent.).

Examination of the mouths of healthy men in the camp for pneumococci has shown types usually present in the mouth, namely, Atypical Type II and Types III and IV in 61.2 per cent. of those examined. Pneumococcus Type I has been found only twice—once in a company in which four cases of Type I pneumonia had occurred, and once in a man who a short time before the examination had been in the hospital with otitis media and tonsillitis.

During the period of our investigation, hemolytic streptococci had an insignificant part in the production of pneumonia and its complications. There have been 112 cases of measles, but no complications referable to hemolytic streptococci. Hemolytic streptococci have been found in the mouths of one in four or five healthy men in Camp Funston. Evidence obtained has suggested that hemolytic streptococci may disappear from the mouths of patients with the onset of measles; few carriers were found during the period of the rash, but later the incidence of hemolytic streptococci gradually increased, and finally reached that of healthy men in their own organizations.

Bacillus influenzae has been found in the mouths of 35.1 per cent. of the healthy men examined at Camp Funston. It has been found associated with pneumococci in eight of sixty-two cases of pneumonia. We have had no opportunity to study the bacteriology of influenza.

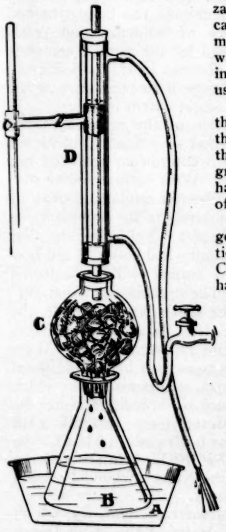
A small group of cases of bronchitis have been studied. In all that have been examined by appropriate methods, pneumococci Type IV or Atypical Type II have been found. Of thirteen cases, all but two harbored either *Streptococcus hemolyticus* (four instances) or *Bacillus influenzae* (seven instances).

Clinical Notes, Suggestions, and New Instruments

IODIN CONSERVATION: CAMP LEWIS METHOD

A. E. Rockey, M.D., (Portland, Ore.)
Major, M. C., U. S. Army
Camp Lewis, American Lake, Wash.

Tincture of iodin has by reason of its convenience and efficiency largely superseded other antiseptics for skin sterilization preparatory to surgical operations. The ordinary method is to paint the skin with a small gauze mop held in forceps. These mops are usually thrown away.



Apparatus for recovering iodin from iodin mops: *A*, water bath; *B*, alcohol; *C*, iodin mops; *D*, condenser.

Long ago it occurred to me that the waste was greater than the use, and the saving of the mops was begun. The greatly increased cost of iodin has lately emphasized the need of conservation.

In collaboration with Sergeant Brown under the direction of Major Staniford in the Camp Lewis laboratory, we have worked out a practical method of conservation which we have now been using for several months.

The iodin mops are dropped into a conveniently placed dish in the surgery and are then saved in large glass jars. When they have accumulated in a sufficient quantity they are taken to the laboratory and the iodin is recovered in the form of tincture by repercolation with condensed alcohol vapor. The apparatus here illustrated is simple and may be obtained from any large dealer in chemical glassware.

As the boiling point of alcohol is below that of water, it is only necessary to heat the water bath until the alcohol boils. The iodin does not volatilize from the liquid. A piece of moist starch paper placed at the open end of the condensation tube is not discolored. The condensed alcohol vapor drops back through the mops and carries the iodin with it in the form of tincture. It may be readily standardized by the color test, a convenient standard being a 1 dram vial filled with the desired percentage of the tincture. When desired, the residual dilution in the mops may be readily "squeezed"

out by applying a cold, wet cloth to the upper portion of the alcohol flask. This may be done at the conclusion of the percolation, when the mops are white. They are then washed, resterilized and used again.

It is believed that the total waste of iodin in both military and civil hospitals enormously exceeds that which is actually utilized. It is suggested that groups of hospitals cooperate in the saving of their iodin mops and in the reclamation of both the iodin and the gauze.

At Camp Lewis we have requested civil hospitals in Tacoma, Portland and Seattle to aid us in demonstrating the utility of the plan by sending their mops to the base hospital laboratory.

REPORT OF A CASE OF EXTREME DISPLACEMENT OF THE VERMIFORM APPENDIX

GEORGE F. STRAUB, M.D., AND G. C. MILNOR, M.D., HONOLULU, H. I.

The rarity of an extreme displacement of the appendix leads us to report this case, believing that it may be of interest and value to the profession.

REPORT OF CASE

History.—H. C., American laborer, aged 38, gave the history of having had indigestion and obstinate constipation for five years. During this period he also had felt nearly constant but mild pain in the right abdomen above McBurney's point. He had never had a typical attack of appendicitis, but said that often during his work and at night, a sudden sharp pulling pain would occur, always located about 2 inches above McBurney's point and radiating upward to the ensiform cartilage, where it would center for ten or fifteen minutes. He had lost 45 pounds in weight in five years and had been treated for various stomach disorders. Otherwise his history was negative.

April 15, 1918, the pain described above was so severe as to force him again to consult a physician. There was no fever. The pulse was normal. There was no vomiting and only slight tenderness a little above McBurney's point without any rigidity. The leukocyte count was 9,800. A diagnosis of chronic appendicitis was made and an operation advised.

Operation.—April 16, 1918, the patient was operated on at the Queen's Hospital, Honolulu. A McBurney incision was made, and after thirty minutes of careful searching the appendix was located. The cecum was found to be drawn upward about 3 inches out of position, while the transverse colon formed a rather long loop hanging down below the umbilicus, without omentum. It was this loop constantly appearing in the wound that led us astray in exactly locating the appendix. The base of the appendix was finally found 3½ inches above McBurney's point, not postcecal, but anterior and adherent to some organ above, pulling the cecum upward and dragging the ileocecal junction with it.

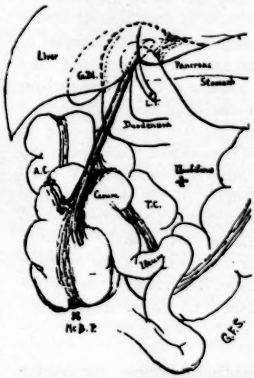
The accompanying illustration shows how the appendix in its course crossed part of the ascending colon, constricting it and also the beginning of the transverse colon, and then crossing the duodenum under the gallbladder passed underneath the pylorus ending on and adherent to the head of the pancreas.

As it was impossible to do anything more than locate the base of the appendix through the first opening, a high right rectus incision was made through which the tip was secured and freed from the underlying structures, a most difficult task, as the adhesions were very firm and numerous. Once loosened, the tip was brought out of the McBurney incision. The cecum then was able to occupy its normal position. From this point the appendix was tied off, amputated and the stump buried by purse-string. The appendix was 6 inches long, of normal thickness, and aside from two strictures (one of them near the tip) and a moderate degree of chronic congestion, did not present any abnormalities. There was no mesenteriolum.

The patient made an uneventful recovery and is now feeling perfectly well. He is free from pain. The indigestion and constipation have left him, and he is gaining weight right along.

PATHOLOGY

The pathology of this condition is most interesting. The appendix and cecum belong in the right lower quadrant of the abdomen. Any position outside of this location is to be classified as a displacement of the ileocecal apparatus. One group of such displacements may be caused by a long mesentery, a free and movable mesocolon, which is most frequently the case. We may call them floating ileocecum. The appendix may then be found in any location of the abdomen, occasionally in hernias, etc. The other group of cases have their foundation in arrested fetal development. Following up the embryonic genesis of the large intestine we see the primitive intestinal loop differentiate into the small and large intestine, and the beginning of the large intestine, the ileocecum, mainly due to the influence of the much faster growing small intestine, rotate over and around the latter, which process makes the ileocecal apparatus take a route over the spleen and stomach (eight weeks), duodenum (nine weeks), below the liver into the right hypochondrium (ten weeks) and from then on down toward its final and normal position (from the fourth to the seventh month). Kelly says that "the cecum may never reach the iliac fossa, if during its descent the ileocecal apparatus or any portion of it becomes adherent to neighboring organs, such as the kidney, the gallbladder or the duodenum." Consequently the fixation of the ileocecal apparatus may occur at any point while on its course during the embryonic rotation of the primary intestinal loop. According to statistics, the proportion of the undescended ceca in the male and female is about 2:1. It is also a fact that appendixes in such cases tend to retain the fetal type, that is, do not show the sharply defined border between cecum and appendix, although this was not the case in our observation.



Position of appendix, the tip of which was adherent to the pancreas, thus pulling the cecum upward.

If in the light of such knowledge we try to explain the pathology of our case, we must come to the conclusion that we have to deal with a displacement of the appendix, due to arrested fetal development, probably around the eighth week of embryonic life. From a clinical standpoint the symptoms were rather characteristic and interesting as compared with the operative findings.

401 South Beretania Street.

Surgical Instrument Manufacture in the United States.—The *Scientific American* summarizes from a recent report of the United States Tariff Commission information concerning the condition of surgical instrument manufacture in this country and shows our dependence on foreign instrument makers prior to 1914. In the latter year the value of all surgical instruments produced in the United States was $1,400,000, while the importations of steel instruments were valued at $1,500,000, about 95 per cent. of which came from Germany. It will be a surprise even to surgeons to know the great number of different instruments supplied. For instance, one of the largest importing houses offers to supply any one of 10,000 items, and well stocked retail dealers will carry from 6,000 to 7,500 different types. Heretofore the manufacture of surgical instruments involved a great variety of skilled hand labor. Since the beginning of the war standardized types of instruments have been produced in this country by machinery in place of hand work.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

535 NORTH DEARBORN STREET . . . CHICAGO, ILL.

Cable Address . . . . . "Medic, Chicago"

Subscription price . . . . . Five dollars per annum in advance

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SATURDAY, JANUARY 11, 1919

THE FUNCTIONS OF THE DUODENUM

The not infrequent necessity of surgical interference with the integrity of the alimentary tract inevitably raises the question as to the importance of such physiologic functions as may thereby be involved. In the case of the stomach there is now general accord with the view that this organ is not indispensable to life. Complete excisions have been made not only in experimental animals, but also in the human patient, without untoward results other than those necessitating a careful selection of diet because of the absence of preparatory digestive and bactericidal processes at the beginning of digestion. Surgical experience has demonstrated that varying lengths of the small intestine in the region of the jejunum and ileum can be removed without serious inconvenience. At most the ill effects of extensive resections of this portion of the intestine are represented by nutritional disturbances, the expression of incomplete digestion of an unsuitable diet. Truly systemic disorder is not a direct sequel to extirpations of this sort.

The removal of the duodenum presents far greater difficulties than those offered by the lower portions of the bowel. The intimate association of the pancreas with the duodenum, and the natural drainage of the stomach, the pancreatic and biliary ducts into this structure make the surgical problem more serious. But further than this there is the question as to the physiologic importance of the duodenum in whole or in part in relation to the maintenance of life. In other words, is the duodenum, aside from its digestive performances, necessary for life? On this highly important question the available evidence is most confusing. The long debated contention of the physiologist Pflüger that loss of the duodenum is certain to result in severe diabetes has been effectually disposed of as untenable by the consensus of competent experimenters. Nevertheless at least one American physiologist has maintained that the duodenum is as necessary to life as are the suprarenals or parathyroid structures, the implication being that it furnishes an indispensable hormone. To some degree the problem of duodenal function is involved in the controversies respecting the alleged toxemias of intestinal obstruction that have repeatedly been discussed in THE JOURNAL.[1]

The latest contribution on the subject, an experimental study at the State University of Iowa,[2] is somewhat reassuring, as the results are of a positive rather than a negative character. The report states that animals can survive indefinitely a complete extirpation of the combined jejunum and ileum. A dog was kept three months after a complete removal of the pyloric part of the stomach, the entire duodenum and the upper jejunum. Therefore the mucosa of this region of the digestive tract is not comparable to the suprarenals or parathyroids in function. Furthermore, the Iowa physiologists affirm, as the outcome of their observations, that the normal secretions of the duodenum and jejunum are not toxic. When bacteria are excluded from the lumen of the intestine, various pathologic changes, even to complete occlusion of the blood supply to an isolated piece of intestine with resulting autolysis and reabsorption, can take place without the elaboration of sufficient toxic substances in the cells themselves or in their secretions to kill the animal. The logic of the situation leads to the conclusion that the duodenum does not excrete in the duodenal juice any substance necessary for life or for the function of the intestine lower down. In other words, there is no evidence that the duodenal juice contains anything vitally necessary to the organism.

THE NATURE OF AUTOLYSIS

The softening or liquefaction of dead tissues without the intervention of bacterial putrefactive processes has long been recognized as a biologic possibility. In 1890, Salkowski announced that this postmortem self-digestion, or "autodigestion," as he termed it, is due to enzymatic changes of the sort subsequently designated as intracellular. The expression "autolysis" now in vogue to designate the same phenomena was introduced in 1900 by Jacoby. Since then it has gained increasing prominence in relation to various problems of chemical pathology. The importance assigned to the subject is indicated by the fact that some investigators have even regarded postmortem autolysis as a continuation of a normal intravital process; hence it was believed that a thorough understanding of the mechanism of autolysis might give a clue to the phenomena of protein changes in the living cell. As one writer[3] has expressed it, "It may be assumed with certainty that no one would have devoted so much effort and care to these rather bothersome subjects

1. The Consequences of Intestinal Obstruction, editorial, J. A. M. A. **61**: 1988 (Nov. 29) 1913; Intestinal Obstruction, **63**: 1299 (Oct. 10) 1914; Newer Knowledge Regarding Intestinal Obstruction, **64**: 1914 (June 5) 1915; The Blood in Intestinal Obstruction, **67**: 364 (July 29) 1916; The Toxemia of Intestinal Obstruction, **68**: 914 (March 24) 1917.

2. Dragstedt, L. R.; Dragstedt, C. A.; McClintock, J. T., and Chase, C. S.: Extirpation of the Duodenum, Am. J. Physiol. **46**: 584, 1918.

3. Von Fürth, O.: Chemistry of Metabolism, translated by A. J. Smith, Philadelphia, J. B. Lippincott Company, 1916, p. 78.

if it were not for the impression that just here there is a chance to remove one part of the intermediary metabolism from the dark interior of the living economy into the transparency of the test tube."

The difficulty of reconciling the supposed behavior of the postulated autolysis enzymes of the various tissues, practically all of which have been shown to be capable of "self-digestion" or autolysis, with the manifestations of the familiar proteolytic digestive ferments has been considerable. Wells[4] concludes that the intracellular proteases assumed to be specifically responsible for autolysis are not altogether like either pepsin or trypsin; for they split proteins into the simplest compounds, whereas pepsin carries the digestion only to the peptone stage under ordinary conditions, and unlike trypsin their action is most marked in a faintly acid medium. To explain why agencies so potent for cell disintegration after death do not produce comparably profound dissolution of the tissues during life, various hypotheses have been advanced. The existence of specific antienzymes in the living cells as means of defense has been assumed. Again it has been suggested that the autolyzing enzymes are present only in the form of precursors or pro-enzymes which gain effectiveness under postmortem conditions. All recent workers have recognized the significance of the reaction of the medium in which the autolytic materials are present. In some cases the favorable acid, for example, has been believed to render the protein substrate more susceptible to digestion. In others the question of reaction has been interpreted solely with relation to the enzymes themselves. Despite all this confusion, volumes have been written on the presumable significance of autolysis in the disappearance of degenerated tissues, the softening of infarcts, the resolution of exudates, and related manifestations.

Recent studies of Dernby[5] at the Rockefeller Institute for Medical Research, New York, promise to clear up some of the obscurity surrounding the subject of autolytic enzymes. From this exceptionally well conducted investigation it seems likely that most, if not all, of the tissues—liver, spleen, pancreas, gastric mucosa and leukocytes were specifically investigated—contain proteolytic enzymes of the pepsin type and likewise of the trypsin or erepsin type. The latter demand a hydrogen ion concentration that is on the alkaline side, and have their action checked in a slightly acid solution. The pepsin-like enzymes, on the other hand, cannot act in alkaline or even neutral solution. According to Dernby, both types of proteolytic enzymes occur in all the tissues studied. In some of them, however, one or the other of the enzymes has been predominant over the others, as the pepsin in the stomach and the trypsin in the pancreas. Unlike the less specialized enzymes, pancreatic trypsin and gastric pepsin can easily be extracted from the cells.

Autolysis of tissues proceeds most rapidly and completely when the two types of enzymes can work simultaneously. This is in slightly acid solution. The optimal reaction lies between that for pepsin and for trypsin, respectively. Considering that there are enzymes in the tissues of both peptic and tryptic nature, says Dernby, and considering also the hydrogen ion concentration of the medium and its eventual changes, most of the autolytic reactions can be explained without assumption of hypothetic agents, such as "proenzymes," "activators" or "antienzymes." The significance of seemingly insignificant changes in reaction for the progress of many physiologic phenomena needs to be appreciated more than it has been. The modern study of hydrogen ion concentration in relation to biologic responses has brought to light many astounding and unexpected facts, among which these observations on tissue enzymes and their activities may now be classed.

4. Wells, H. G.: Chemical Pathology, Philadelphia, W. B. Saunders Company, 1918, p. 84.
5. Dernby, K. G.: A Study on Autolysis of Animal Tissues, J. Biol. Chem. **35**: 179, 1918.

"ASPIRIN"—A COMMON NAME

"Aspirin" as a trade-mark will no longer exist if the recommendation of the Examiner of Interferences of the United States Patent Office is upheld, as it probably would be, should the matter be taken to the courts. The opinion of the Patent Office was the result of a petition by the United Drug Company in the case of that company against the Bayer Company, or, as it was called at the time the suit was brought, the Farbenfabriken of Elberfeld Company. The stand taken by the Patent Office is directly in line with that that has been held in this and other cases by THE JOURNAL, which has for years insisted that it was against public policy to permit patentees to extend the seventeen-year monopoly, which the patent laws grant, to a perpetual monopoly by the simple device of obtaining a trade-mark for the name of the thing patented. It is a fundamental principle in law that "no one can have a monopoly in the name of anything." This of course has been recognized and admitted even by those manufacturers who have attempted to invoke the trade-mark laws to obtain an unwarranted advantage.

The manufacturers of aspirin have held that the chemical name "monoaceticacidester of salicylic acid" was the true name of the patented article, and was the *only* name which became public property when the patent right expired. The Patent Office points out, however, that for years the only name that the public ever saw on the brand of monoaceticacidester of salicylic acid made by the holders of the patent on this product was "Aspirin." The Examiner of Interferences in this decision points out that, previous to 1915, the Bayer Company sold no tablets to the retail-purchasing public, but marketed its product as a powder; further, that it did sell vast quantities of the

powder to tablet-makers, who sold "Aspirin Tablets," and that the consuming public knew the product only by the name "Aspirin." This name, then, had a significance to the purchaser, similar to that of the word "quinin" on a package of quinin tablets, or the word "calomel" on a package of calomel tablets. As the Patent Office says: "In other words, the *prima facie* significance of this word 'Aspirin' to such purchasers was that of a name"—and as a name it is "necessarily incapable of exclusive use by any one."

The Patent Office's decision also brings out the fact that, until the owners of the aspirin patent commenced making tablets themselves, the aspirin tablets on the market were not uniform, and that this lack of uniformity was a fraud on the public which the owners of the aspirin patent should have prevented. The concern did prevent it when it began to make the tablets itself, but maintained in its contention against the United Drug Company that it was unable to control the matter previously—a contention to which the Patent Office gives short shrift. It is further pointed out that the Bayer Company evidently recognized the weakness of its contention by the emphasis it placed through its advertising on the "Bayer Cross."

When the Bayer Company began manufacturing its own aspirin tablets, it made a pretense of complying with the letter of the law, while violating its spirit, by placing on the label under the word "Aspirin," the statement that "the monoaceticacidester of salicylic acid in these tablets is the reliable Bayer manufacture. Says the Patent Office: "With regard to the expression 'monoaceticacidester of salicylic acid,' a mere inspection of it is sufficient to apprise any one of its inherent unsuitability for use as a name by the lay purchasing public." This attempt on the part of the company to "beat the devil around a stump" tended, in the opinion of the Patent Office decision, "to show that the respondent was familiar with the methods of some modern traders to meet the trend of the law." And, discussing such methods, the Examiner of Interferences says: "A very popular one is for a trader to seemingly bend to the necessity of the situation by placing on the label a notation which in theory, but not in practice, may be used by the public to identify the article after the monopoly has expired. To the examiner this practice seems to be merely a manifestation of that keen commercial instinct which endeavors to keep just ahead of the law. This instinct is fairly common in traders, and is clearly disclosed in trade-mark infringement cases."

Summed up, the decision is to the effect that, as in any case prior to 1915, the public had been driven to look on the word "Aspirin" as the name of a *thing*, and as the Bayer Company had not used the word as a "trade-mark" within the meaning of the law, the Patent Office recommends that the registration of "Aspirin" as a trade-mark be canceled. If no appeal is taken from this decision, or in case an appeal is taken, should the opinion be sustained, the attempt on the part of the patentees of aspirin to get a perpetual monopoly on their product through the trade-mark laws will have been definitely defeated.

THE MECHANISM OF EXPERIMENTAL PITUITARY DIURESIS

The investigation of the functions of the pituitary body, or hypophysis, and likewise the possibilities of the use of the gland in organotherapy have been complicated by the now recognized fact that the anterior and the posterior or infundibular portions exert unlike effects. The therapeutic applications have been restricted thus far to the study of the posterior lobe, with which is included the pars intermedia. Schäfer demonstrated several years ago that extracts of this produce a rise of blood pressure and diuresis. The intelligent employment of diuretics will depend, when therapy becomes rationalized, on a correct understanding of the mechanism by which each drug acts. In the case of the kidney the possibilities are at least twofold. Substances may provoke an increased production of urine by altering the blood flow through the renal vessels. These dilate, while the blood vessels elsewhere are more or less constricted, and a diuretic effect ensues. Or, the renal cells may be stimulated directly by the substance investigated. In this way urea and caffein act as diuretics.

How uncertain the mode of action of pituitary extract as a diuretic appears is indicated by the conclusions of Hatcher and Wilbert[1] in "The Pharmacology of Useful Drugs," wherein it is stated that:

> The renal vessels dilate while the splanchnic vessels constrict, and this effect has been invoked to explain the well-known diuretic action of pituitary, but there is no reason to doubt that it also acts directly on the renal cells causing an increased secretion, both actions probably being concerned in the diuresis.

True cellular activity means metabolism, which assumes a need of oxygen. "There is no instance in which it can be proved that an organ increases its activity under physiological conditions without increasing its demand for oxygen." If pituitary extracts actually provoke an increased activity of the renal tissue, the kidneys will show an augmented consumption of oxygen. In the latest experimental studies by Knowlton and Silverman[2] at the Syracuse University College of Medicine, the oxygen consumption was used as a criterion without obtaining any evidence that pituitary extract stimulates the kidney cells. On the other hand, increased blood flow through the kidney

1. Hatcher, R. A., and Wilbert, M. I.: The Pharmacology of Useful Drugs, Chicago, American Medical Association, 1915, p. 197.
2. Knowlton, F. P., and Silverman, A. C.: The Action of Pituitary Extract on the Kidney, Am. J. Physiol. **47**: 1, 1918.

was an invariable accompaniment of pituitary diuresis. Hence Knowlton and Silverman conclude that from the evidence at hand it seems possible to explain the diuretic action of pituitary extract entirely on the basis of the vascular changes and increased filtration pressure obtaining in the kidney. Such vascular effects would be in harmony with the other more familiar actions of extracts of the posterior lobe on involuntary muscle.

Current Comment

ANNUAL REPORT OF THE PUBLIC HEALTH SERVICE

The annual report of the Public Health Service covering the fiscal year ending June 30, 1918, is interesting and unique in showing the relation of the Public Health Service to the military and naval departments in time of war. The year 1918 was marked by two important pieces of legislation relative to the Public Health Service: first, an executive order, issued July 1, placing all civil public health activities carried on by any federal executive department or agencies especially created for or concerned in the prosecution of the war, in the charge of this department, and second, the passing, October 27, of an act to establish in the Public Health Service a sanitary research corps. During the year the service carried out all of its usual work; controlled the sanitation of extracantonment zones; gave attention to industrial hygiene and the care of munitions plants and other factories making war materials; controlled the manufacture of biologic products, and, in cooperation with the Federal Trade Commission, assumed supervision over the manufacture of arsphenamin. All of this work is described in detail in the report. Sections are devoted to domestic and interstate quarantine; to extracantonment zone sanitation; to maritime quarantine; to sanitary reports and statistics and to maritime hospitals and relief. In that portion of the report concerning personnel and accounts, it is indicated that thirteen officers have been continuously detailed to the Navy during the war and that two officers are now on duty with the Army. Aid has also been extended to the bureaus of War Risk Insurance, the Emergency War Risk Corporation and the Federal Board for Vocational Education. At the close of the year the commissioned officers of the Medical Corps of the Public Health Service consisted of the Surgeon-General, one assistant surgeon-general, sixteen senior surgeons, seventy surgeons, sixty-one passed assistant surgeons and sixty-three assistant surgeons. The section devoted to publications shows that a great many reports have been published during the year covering many phases of research and investigation. In a final section on the needs of the service, Surgeon-General Blue urges the completion of the national quarantine system by acquiring the Baltimore and New York quarantine functions. It is also recommended that the national quarantine stations at the ports of Norfolk, Mobile, New Orleans and San Francisco be relocated as soon as possible. These stations are at present almost inaccessible to the cities that they represent. Additional funds are asked for the continuation and expansion of rural sanitation studies and for studies of industrial workers and plants and for research on diseases of unknown etiology. It is recommended that the relief work of the service be extended to include the care and treatment of civil employees when ill, and also that hospital accommodation be supplied for the treatment of discharged soldiers and seamen. The need of still further bettering methods of securing statistics is emphasized and, finally, additional appropriations are asked so that service literature may have wider distribution. The report of the Surgeon-General of the Public Health Service is a more personal report than that of either the Surgeon-General of the Army or of the Navy, since the names of officers engaged in various duties are given as well as the stations that they have occupied.

THE PHYSICIAN AND THE INCOME TAX

The present federal income tax law, however unpopular it may be, bids fair to improve the business methods of physicians, and to throw a light on the question of the doctor's income. It is too common for a physician to regard his cash receipts as his income. A physician when asked how he is getting along will say, "I took in $6,000 last year," or "I did $10,000 worth of business." Practices are advertised for sale on the same basis. Yet this is not the true income any more than are the gross receipts of a grocer or a dry-goods merchant. Any business man who regarded his total cash intake for the year as his income would be considered by his business associates as headed for the bankruptcy court or the lunatic asylum. The business man knows that out of his gross receipts must come his operating expenses, insurance, depreciation, replacement of stock, and interest on investment before he can even begin to estimate his profit for his year's work. Yet prior to the passage of the present law, the great majority of physicians would have been unable to estimate their income on any other basis. Few physicians, except city specialists with offices separate from their homes, have been in the habit of separating their business from their family and personal expenses. The income tax law has made it not only necessary, but also highly profitable for us to keep books more carefully than we have heretofore done, since exemption is allowed for all legitimate professional operating expenses. This calls for definite figures as to the amount spent for office rent, attendants and maintenance, drugs and surgical dressings, maintenance of automobile or other conveyance, medical periodicals, associations and meetings, etc. In a word, it requires us to estimate the cost of carrying on our business, and the difference between this and the gross receipts. Many physicians who have heretofore been entirely ignorant of what their business was costing them have been surprised to learn that their real professional income was one-third or one-fourth what they had supposed. The income tax, in its present form at least, is a war measure, and few, if any, will regret its disappearance or material

modification; yet if during the time that it is in force we learn to keep systematic records of receipts and expenditures, it will have taught a most important lesson.

A REMARKABLE LETTER

At a recent meeting of the New Jersey Sanitary Association, the retiring president, Mr. G. W. Fuller of New York, read a letter addressed to him in January, 1892, by the eminent German sanitary engineer, C. Piefke, whose name is especially familiar to all those interested in the sand filtration of water supplies. Part of the letter as presented by Mr. Fuller[1] is as follows:

> Here in Germany, conditions have changed to be very uncomfortable. Militarism and bureaucracy are spreading over our very existence, and despite all effort, no success rewards him who does not occupy a high rank within this hierarchy. Then comes the unfortunate passion for titles among Germans in general, so that an individual is not esteemed according to his personal worth, but his social position. . . . America is today the only civilized country where no restraint is placed on the pleasure of working, either through antiquated regulations or through the rights of privileged classes.

Mr. Fuller goes on to say:

> The latter years of Piefke's life were spent very unhappily —deprived of his water-works position in Berlin and assigned practically to be a recorder of ground water statistics for the Berlin district.

The picture presented in Piefke's letter of German professional life twenty-five years before the war is a significant one. It is especially interesting in the light of what has happened during the last four and a half years.

GASTRIC SECRETION AND AMMONIA EXCRETION

It is more than forty years since Walter[2] demonstrated that the ammonia output in the urine can be increased or decreased by the ingestion of acids or alkalis, respectively. Recently we concluded[3] that there is no reason today for believing otherwise than that the sole function of the ammonia found in the urine lies in the neutralization of acids arising in the normal metabolic processes, assuming, of course, that acid is not fed as such. An interesting illustration of the phenomenon of ammonia production and excretion in relation to the gastric secretion of hydrochloric acid has just been pointed out by Ivy[4] in the Hull Physiological Laboratory of the University of Chicago. He has found that during gastric stimulation by food and by water, followed by absorption in the intestine, there is an increase in urinary ammonia. The degree of increase depends on the rate of absorption of the acid chyme. It is not enough that hydrochloric acid shall be secreted. Unless there is a subsequent absorption in the intestine, no alteration in the ammonia factor ensues. The ammonia excretion depends on the balance of acids and bases in the body. One might expect that when acid is abstracted from the blood for gastric secretion the blood would become alkaline; but it must be recalled that alkali is secreted in turn in the formation of pancreatic juice. If the acid is returned by absorption more rapidly than it can be neutralized by the intestinal alkali, it will be neutralized by the ammonia in order that the hydrogen-ion equilibrium may be maintained without drawing on the alkali reserve of the plasma, the importance of which we have frequently discussed.[5]

ANNUAL REGISTRATION OF PHYSICIANS, AND A DANGER

Much interest has been aroused recently in the plan to require an annual registration of physicians[6] which involves the annual renewal of the license and the payment of a nominal registration fee. The arguments advanced for this plan are sound and reasonable. Without such registration a physician presents his credentials, passes his examination, secures his license and begins to practice. Thereafter the licensing board has no authoritative means of securing information from him. He may remain in a single locality and continue as a reputable practitioner of medicine—and if this were always the case there would be no need of an annual registration. But he may move from one place to another in the same state, or he may secure licenses in several states and practice as an "itinerant quack," and the fact be unknown to any of the boards. Again, the physician may die, and it may even occur that one not educated in medicine will secure his diploma and practice under the name of the deceased physician, and the board have no direct means of discovering it. Several such instances have actually occurred. Under a law providing for an annual registration, properly administered, the state board would have reliable information regarding all of these irregularities. The board's records could be more accurate, since each practitioner would be required not only to state where he was practicing, but also to prove his identity by furnishing an affidavit containing other required data. Investigation of failures to send information would usually disclose deaths or removals, and the efforts to furnish identification would frequently, if not invariably, call attention to fraudulent practitioners. There is, however, a danger connected with the plan for an annual registration of physicians, and that is the possibility of a misuse of the additional funds in those states in which the boards divide among their members any surplus remaining at the end of the year. This should be avoided.

1. Engin. News-Rec., p. 1121 (Dec. 19), 1918.
2. Walter: Arch. exper. Path. u. Pharmakol., **7**: 148, 1877.
3. The Significance of Urinary Ammonia, editorial, J. A. M. A. **71**: 1140 (Oct. 5) 1918.
4. Ivy, A. C.: Contributions to the Physiology of the Stomach, XLVII, Gastric Secretion and Urine Ammonia, Am. J. Physiol. **46**: 340, 1918.
5. Blood Alkalinity During Digestion, Current Comment, J. A. M. A. **65**: 806 (Aug. 28) 1915; The Regulation of the Circulation, editorial, **65**: 959 (Sept. 11) 1915; Alveolar Air and Acidosis, **66**: 896 (March 18) 1916; The Alkali Reserve of the Blood, **67**: 882 (Sept. 16) 1916; The Estimation of Acidosis Under Clinical Conditions, **68**: 1327 (May 5) 1917; The Newer Conception of Acidosis, **69**: 646 (Aug. 25) 1917; Pulmonary Ventilation and the Carbon Dioxid of the Blood, **69**: 1789 (Nov. 24) 1917; Respiration and the Carbon Dioxid Capacity of the Blood, **70**: 924 (March 20) 1918.
6. The states in which an annual registration of physicians is now required are California and (recently) Louisiana. Annual registration is commonly required in the provinces of Canada.

Medical Mobilization and the War

Personnel of the Medical Corps

For the week ending Jan. 3, 1919, there were in the Medical Corps 28,222 officers, a decrease of 876 since the previous week. This personnel includes four major-generals, five brigadier-generals, 221 colonels, 2,449 majors, 9,209 captains and 15,814 lieutenants. There were in the active service 27,610, a decrease of 747 since the previous week. Discharges to date include 7,389 officers.

Medical Unit to Siberia

In connection with the announcement a few weeks ago of the formation of a medical unit for Siberia, we are informed that changed conditions have made it necessary to cancel the sending of this unit with the exception of five dentists, who are now en route.

Award for Bravery

Capt. James B. Clinton, M. C., U. S. Army, Philadelphia, assigned to duty with the British Expeditionary Forces in September, 1917, and with the 133d Field Ambulance, and was given the Military Cross on account of gallantry in action at Mount Kemmel, in May last, was awarded a bar to the Military Cross for gallantry in action, August 23.

Good Health of American Troops

An Associated Press dispatch from Chaumont, December 25, states that in the eight evacuation hospitals in the occupied area of the Third Army, there are only about 4,000 cases of illness, most of which are influenza. This amounts to less than 1.05 per cent. The Third Army has five hospitals in Coblenz, two at Treves and one at Mainz. Most of these were originally German hospitals, and have modern equipment.

HONORABLE DISCHARGES, MEDICAL CORPS, U. S. ARMY

ALABAMA

Birmingham—Collins, T. (Lieut.)
Mobile—Cowles, T. D. (Lieut.)
Gaines, M. T. (Capt.)
Thorsby—Woolley, C. M. (Lieut.)

ARIZONA

San Carlos—McDuffie, W. N. (Lieut.)

ARKANSAS

Fort Smith—Neal, J. H. (Lieut.)

CALIFORNIA

Beckwith—Decker, J. (Lieut.)
Coalinga—Hutchinson, C. W. (Lieut.)
Dos Palos—Johnson, B. W. (Lieut.)
Fresno—Nielsen, H. W. (Lieut.)
Hollister — O'Bannon, R. W. (Capt.)
Los Angeles—Brownfield, W. H. (Lieut.)
Byrnes, R. L. (Major)
Cook, E. J. (Capt.)
Frank, M. A. (Lieut.)
Hamilton, G. L. A. (Lieut.)
McNaughton, J. A. (Capt.)
Napa—Abrons, H. (Lieut.)
Oakland—Parish, H. L. (Capt.)
San Diego—Barclay, H. A. (Capt.)
Crabtree, E. H. (Lieut.)
San Francisco — Bullock R. R. (Capt.)
Stevens, B. S. (Capt.)
San Pedro—Levin, H. (Lieut.)
Tipton—Hull, F. E. (Lieut.)

COLORADO

Denver—Foley, J. W. (Capt.)
Eagle—Wallace, P. B. (Lieut.)
Greeley—Church, W. F. (Capt.)
Walden—Fisher, C. H. (Capt.)
Wellington — Gleason, R. L. (Lieut.)

CONNECTICUT

Danbury—Gordon, W. F. (Capt.)
Hampton—Cocheu, L. F. (Capt.)
Hartford — Cogswell, E. S. (Lieut.)
New Haven — Falsey, E. T. (Lieut.)
Waterbury—Green, J. H. (Lieut.)

DISTRICT OF COLUMBIA

Washington — White, G. F. (Lieut.)

FLORIDA

Hawks Park—Forster, D. (Capt.)
Punta Gorda — McQueen, D. N. (Lieut.)
Tampa—Bird, U. S. (Lieut.)

GEORGIA

Chipley—Avery, R. M. (Lieut.)
Dalton—Steed, J. H. (Lieut.)
Manor—Thomas, W. R. (Lieut.)
Quitman—Mathews, W. (Capt.)

IDAHO

Fairfield—Higgs, D. P. (Capt.)
Moscow—Wiik, J. C. (Capt.)
New Plymouth — Drysdale, W. T. (Lieut.)

ILLINOIS

Bonfield—Yeates, W. (Capt.)
Carlinville — Westermeier, G. W. (Lieut.)
Cave-in-Rock — Oxford, S. E. (Lieut.)
Chicago — Bottolfson, B. T. (Lieut.)
Casserly, E. A. (Lieut.)
Conrey, G. A. (Lieut.)
Folk, M. L. (Lieut.)
Gregory, J. T. (Lieut.)
Hoag, J. C. (Capt.)
Hornsby, J. A. (Lieut.-Col.)
Kenny, H. R. (Lieut.)
Kubola, S. F. (Lieut.)
Kucera, J. F. (Lieut.)
Mendel, M. L. (Capt.)
Miller, E. B. (Lieut.)
Nicholson, R. M. (Capt.)
Pritsker, L. J. (Capt.)
Tigay, R. (Lieut.)
Columbia—Sondel, L. C. (Lieut.)
East Alton — McKinney, G. L. (Lieut.)
Galena—Smith, H. F. (Lieut.)
Harrisburg — Lehman, D. A. (Capt.)
Homer—Brayshaw, J. (Lieut.)
Joliet — McRoberts, W. A. (Lieut.)
La Rose—Eastman, J. A. (Lieut.)
Marshall — Mitchell, R. A. (Capt.)
Mattoon—Parrish, B. D. (Capt.)
Melrose Park — Scott, W. F. (Capt.)
Nashville — Rabenneck, P. B. (Lieut.)
Oak Park—Brown, F. L. (Lieut.)
Spiering, A. K. (Lieut.)
Okawville—Jack, R. B. (Capt.)
Peoria—Floyd, T. W. (Capt.)
Horwitz, S. (Capt.)
Rockford—Catlin, S. R. (Capt.)
Rushville — Fleming, C. M. (Lieut.)
Salem — Cunningham, H. A. (Lieut.)
Steward—Durin, J. M. (Lieut.)
Toulon—Berfield, C. (Lieut.)
West Frankfort — Bennett, C. E. (Lieut.)

INDIANA

Akron—Ferry, P. L. (Lieut.)
Anderson — Flemming, H. G. (Capt.)
Arcadia—Rodenbeck, F. (Capt.)
Brownstown — Cummings, D. J. (Capt.)
Elkhart—Hoover, E. M. (Capt.)
Frankford—Sickler, R. (Capt.)
Freedom—Hazel, J. T. (Capt.)
Hammond—Melton, O. O. (Lieut.)
Hartford City—Wise, W. (Lieut.)
Hope—Norton, J. W. (Capt.)
Huntington — Galbreath, R. S. (Lieut.)
Indianapolis — Migennis, H. L. (Lieut.)
Kokomo—Adams, C. J. (Lieut.)
New Palestine — Mace, E. E. (Lieut.)
Peru—McDowell, M. A. (Lieut.)
Quincy—McQueen, W. (Lieut.)
Richmond—Gentle, L. M. (Capt.)
Rockport—Ehrman, C. D. (Capt.)
South Bend —Gordon, J. M. (Lieut.)
Tennyson — Spradley, L. G. (Lieut.)
Walton—Spohn, E. A. (Lieut.)

IOWA

Akron—Mattison, G., Jr. (Lieut.)
Bellevue—Dennison, J. C. (Capt.)
Grandview — McGrew, O. W. (Lieut.)
Lenox—Caldwell, J. S. (Lieut.)
Mason City — McDonald, J. E. (Capt.)
O'Brien, S. A. (Capt.)
Rock Rapids — Boetel, G. H. (Lieut.)
Rolfe—Hollis, E. L. (Lieut.)
Wilson, E. W. (Capt.)
Sheldon—Myers, J. W. (Lieut.)
Walnut — Robinson, R. E. (Lieut.)
Washington — Wickham, E. T. (Capt.)
What Cheer — Taylor, C. B. (Capt.)

KANSAS

Cambridge — Holland, D. A. (Lieut.)
Coffeyville—Flack, F. L. (Lieut.)
Corning—Maxson, J. C. (Capt.)
Kansas City—Asbell, E. L. (Capt.)
Norcatur—Knox, W. E. (Lieut.)
Salina—Simmons, J. W. (Capt.)
Smith Center — Morrison, H. (Capt.)
Yates Center — West, H. A. (Lieut.)

KENTUCKY

Danville—Cowan, J. R. (Capt.)
McQuady — Martin, W. W. (Lieut.)
Mortonsville — Hackley, J. M. (Capt.)
Paris—Brown, J. T. (Capt.)
Pleasant Ridge — Schultz, Z. H. (Lieut.)
Shelbyville—Beard, S. L. (Capt.)

LOUISIANA

Church Point — Jenkins, H. (Capt.)
New Orleans — Upton, G. H. (Lieut.)
Plaquemine—Holloway, E. (Capt.)

MAINE

Houlton—Walker, A. G. (Capt.)

MARYLAND

Aberdeen — Wilkinson, V. S. (Lieut.)
Baltimore—Eisenberg, A. (Lieut.)
Nelson, J. T. (Lieut.)
Emmitsburg—Stone, D. E. (Lieut.)

MASSACHUSETTS

Boston—Bressler, C. W. (Lieut.)
Parker, F., Jr. (Lieut.)
Framingham — St. Clair, A. E. (Lieut.)
Greenfield—Finch, E. B. (Capt.)
Lawrence—Allen, G. S. (Capt.)
Methuen—Ganley, A. J. (Lieut.)
New Bedford — Wilde, S. B. (Lieut.)
North Adams — Wright, C. W. (Lieut.)
Northampton — Kenney, T. H. (Lieut.)
Springfield — Galvin, A. H. (Lieut.)
Winter Hill — Caswell, B. H. (Capt.)

MICHIGAN

Detroit—Fisher, M. P. (Lieut.)
Hamilton, J. T. S. (Capt.)
Roberts, F. J. (Lieut.)
Flint—Marshall, W. H. (Major)
Menominee — McComb, E. V. (Capt.)
Mount Clemens — Taylor, H. F. (Capt.)
Niles—Henderson, R. (Lieut.)
Oxford—Bachelor, J. W. (Capt.)
Mackinnon, G. W. (Capt.)
Traverse City — Thirlby, E. L. (Capt.)

MINNESOTA

Crockston — Daniels, W. H. Lieut.)
Gully — Swedenberg, A. W. (Lieut.)
Lancaster — Dalquist, G. W. (Lieut.)
Lanesboro — Lommen, A. P. (Capt.)
Le Roy—Morse, M. P. (Lieut.)
Lewiston — Hendrickson, G. (Lieut.)
Minneapolis — Benjamin, A. E. (Capt.)
Benn, F. G. (Lieut.)
Gilroy, E. W. (Lieut.)
Minneota—Thordarson, T. (Capt.)
Rochester — Von Hess, C. L. (Lieut.)
St. Paul—Utley, J. D. (Capt.)

MISSISSIPPI

Indianola—Kent, H. C. (Capt.)
Itta Bena — Crisler, B. C. (Lieut.)
Minter City — Fleming, T. Y. (Lieut.)
Newton — Harrelsen, A. M. (Capt.)

MISSOURI

Charleston — Presnell, C. C. (Capt.)
Clinton—Beaty, J. G. (Capt.)
Excelsior Springs—Musgrave, J. E. (Capt.)
Hamilton—Eads, L. J. (Lieut.)
Joplin—Gregg, A. M. (Lieut.)
Hurwitz, L. (Lieut.)
Kansas City — Miller, W. H. (Lieut.)
Sams, W. M. (Lieut.)
Zoglin, N. (Lieut.)
Lexington — Chalkley, A. J. (Capt.)
Marceline—Cater, R. M. (Lieut.)
New Hampton — Chipp, J. K. (Lieut.)
Parma—Blackman, C. S. (Capt.)
Pascola—Rosson, J. K. (Lieut.)
Salisbury—Morey, O. T. (Lieut.)
Springfield — Anderson, A. L. (Capt.)
St. Charles — Johnson, S. R. (Major)
St. Louis—Buhman, R. (Capt.)
Clemens, J. R. (Major)
Demenil, H. N. (Lieut.)
Gettys, H. B. (Capt.)
Gross, J. H. (Capt.)
Hale, T. H. (Lieut.)
Hanser, H. A. (Capt.)
Harris, R. C. (Capt.)
Mulach, A. A. (Lieut.)
Potts, J. F. (Capt.)
Stockton — Emerson, B. H. (Lieut.)
Warrensburg — Harrison, A. W. (Lieut.)
Wheaton—McCall, O. S. (Capt.)

MONTANA

Cascade—Stratton, O. T. (Capt.)
Geraldine — Hulbush, W. A. (Lieut.)
North Great Falls—Chapman, G. L. (Capt.)

NEBRASKA

Aurora—Haughey, I. W. (Capt.)
Filley—Sweeney, E. E. (Lieut.)
Hartington — Dorsey, F. P. (Capt.)
Harvard—Ingram, J. E. (Lieut.)
Rosenbaum, H. A. (Lieut.)
Omaha—Kadavy, J. (Lieut.)
Wisner—Riley, L. (Capt.)

NEW HAMPSHIRE

Haverhill—Russell, F. C. (Lieut.)

NEW JERSEY

Dover—Farrow, J. W. (Capt.)
Keyport — Hartman, H. W. (Lieut.)
Morristown — Lawless, N. W. (Lieut.)
Trenton—Blaugrund, S. (Lieut.)
Vineland—Gray, C. M. (Capt.)
West Hoboken—Cimiotti, W. F. (Capt.)

NEW MEXICO

Albuquerque — Bakes, F. C. (Capt.)
Clarke, S. C. (Lieut.)
Twichell, D. C. (Capt.)
Lovington — Dearduff, A. A. (Lieut.)
Wagon Mound — Gibbs, H. W. (Lieut.)

NEW YORK

Albany — Haviland, H. C. (Lieut.)
Shaw, H. L. K. (Major)
Bellmore—Holcom, H. V. (Capt.)
Branchport — Costello, M. E. (Lieut.)
Brooklyn—Brown, B. P. (Lieut.)
Globus, J. R. (Lieut.)
Hargitt, C. A. (Lieut.)
Long, J. (Capt.)
Rappeport, J. A. (Lieut.)
Buffalo—Goldberg, M. H. (Lieut.)
Meisenbach, R. O. (Capt.)
Catskill—Jennings, D. W. (Lieut.)
Floral Park — Katzman, A. S. (Lieut.)
Herkimer—Murray, H. C. (Lieut.)
New York—Andres, L. N. (Lieut.)
Campbell, M. (Capt.)
Hertzberg, D. (Lieut.)
Jerome, W. Z. (Lieut.)
Jones, R. M. (Capt.)
Lacovara, A. (Lieut.)
Lederman, M. D. (Capt.)
Osserman, H. A. (Lieut.)
Polak, M. S. (Capt.)
Russell, J. I. (Major)
Splint, F. W. (Capt.)
Oswego—Halsey, W. M. (Capt.)
Sparkill — Knipe, J. B. (Lieut.)
Syracuse—Childs, D. S. (Lieut.)
Charlotte—Durham, A. (Capt.)
Greenville—Ellen, C. J. (Capt.)
Ryland—Spencer, J. R. (Lieut.)

NORTH DAKOTA

Tuttle—Kerner, C. A. (Lieut.)

OHIO

Cleveland — Patterson, D. H. (Lieut.)
Woodworth, J. B. (Capt.)
Darrtown—Wilkie, A. B. (Lieut.)
Kenton—Snodgrass, F. B. (Lieut.)
Leetonia—Conrad, S. A. (Lieut.)
Mount Vernon — Blair, H. W. (Capt.)
Newark — Essington, U. K. (Capt.)
Orrville—Grady, O. G. (Lieut.)
Portsmouth—Tatje, O. D. (Lieut.)
Ravenna—Primm, H. (Capt.)
Rockford — Wickerham, J. O. (Lieut.)
St. Paris—Jenkins, W. I. (Lieut.)
Sugar Creek—Syler, A. H. (Lieut.)
Toledo—Gowing, W. A. (Capt.)
Sweeney, J. J. (Lieut.)
West Liberty — Croft, J. W. (Lieut.)
Youngstown — Higgs, W. E. (Lieut.)

OKLAHOMA

Pritton—Gayman, S. E. (Lieut.)
Broken Bow — Sherrill, R. H. (Lieut.)
Davidson—Bacon, O. G. (Lieut.)
Fluer—McConnel, L. H. (Lieut.)
Humphrey—Lowe, J. T. (Lieut.)
Jenks—Harris, B. (Lieut.)
Magnum — Landrum, M. M. (Lieut.)
Mekuskey—Harber, J. N. (Lieut.)
Oklahoma City — Brake, C. A. (Lieut.)
Oklahoma City—Kelly, J. F. (Lieut.)
Phelan, J. R. (Capt.)
Stevens, J. W. (Lieut.)
Rush Springs—Evans, H. M. (Lieut.)
Sapulpa—Harris, B. C. (Lieut.)
Smith, L. (Lieut.)
Temple—Holsted, A. B. (Lieut.)
Tulsa—Wall, G. A. (Capt.)
Wayne—Dawson, O. O. (Lieut.)
Welch—Bradshaw, J. O. (Lieut.)
Wirt—Toler, T. M. (Lieut.)
Yale—Hudson, W. B. (Capt.)

OREGON

Hot Lake—Phy, W. T. (Capt.)
Kalamath Falls—Hamilton, R. R. (Major)
Portland—Johnston, W. (Capt.)
Menne, F. R. (Lieut.)

PENNSYLVANIA

Ardmore—Austin, J. H. (Major)
Beaver Meadows—Hunsicker, P. M. (Lieut.)
Bryn—Miller, G. H. (Lieut.)
Clearfield — Cowdrick, A. D. (Lieut.)
Johnstown — Widmann, B. P. (Lieut.)
Morea Colliery — Conahan, F. J. (Lieut.)
Philadelphia — Carson, J. B. (Major)
Fries, I. A. (Capt.)
Fulmer, C. L. (Capt.)
Hannum, W. (Capt.)
Hartwell, J. H. (Lieut.)
Kuehner, H. M. (Lieut.)
Lewis, F. O. (Capt.)
Peters, W. F. (Lieut.)
Stalberg, I. Z. (Lieut.)
Pittsburgh—Ashinsky, N. (Lieut.)
Soffel, A. (Lieut.)
Scranton—Parry, R. E. (Lieut.)
Steelton—Hursh, R. M. (Lieut.)
Washington — Thompson, A. E. (Capt.)

SOUTH CAROLINA

Branchville — Wimberly, J. S. (Lieut.)
Chester—Malone, H. B. (Capt.)
Clever—Campbell, J. W. (Lieut.)
Florence—Houston, C. E. (Lieut.)
Johnston—Stone, W. C. (Lieut.)
Manning—Geiger, C. B. (Lieut.)

SOUTH DAKOTA

Sioux Falls—Craig, D. W. (Lieut.)
Perkins, E. L. (Capt.)
Vermillion — Burkland, P. R. (Capt.)

TENNESSEE

Gardner — Edmonson, H. G. (Lieut.)
Knoxville—Young, F. L. (Capt.)
Leonia—Harris, L. C. (Lieut.)
Memphis—Moore F. B. (Lieut.)
Moscow—Crook, C. N. (Lieut.)
Mount Pleasant — English, G. C. (Lieut.)
Soarta—Richards, A. F. (Capt.)
Tellico Plains — Niles, W. H. (Lieut.)
Townsend — DeLozier, B. E. (Lieut.)

TEXAS

Carbon—Gilbert, E. B. (Lieut.)
Dallas—Bettison, D. L. (Lieut.)
Ferguson, R. C. (Lieut.)
Delhart—Maxwell, E. L. (Lieut.)
Houston — Glover, F. S., Jr. (Lieut.)
Huntsville — Baylis, H. E. (Lieut.)
Kauntze—Hart, F. B. (Lieut.)
Lipan—Axtell, E. C. (Lieut.)
Meridian—Knight, J. B. (Lieut.)
San Angelo—Horney, H. (Capt.)
San Antonio — Wolf, W. M. (Major).
Sherman — Ridings, A. L. (Capt.)
Temple—Hancok, E. C. (Lieut.)
Terrell—Jarmon, T. M. (Lieut.)

UTAH

Hurtington — Nixon, J. W. (Lieut.)
Ogden—Brown, R. M. (Lieut.)
Standardville — Estes, F. E. (Capt.)

VERMONT

Cambridge — Newton, G. H. (Capt.)
Randolph—Gifford, J. P. (Capt.)

VIRGINIA

Clinchport—Nickels, S. B. (Lieut.)
Gate City—Corns, F. M. (Lieut.)
Suffolk—Rawls, D. L. (Lieut.)
Winchester—Boyd, P. W. (Capt.)

WASHINGTON

Endicott—Henry, B. D. (Capt.)
Seattle—Beckett, E. E. (Capt.)
Lee, E. C. (Capt.)

WEST VIRGINIA

Alderson—Mahood, C. F. (Lieut.)
Bluefield—Kirk, J. B. (Capt.)
Fairmount — Fleming, C. S. (Lieut.)
Farmington — Vaughan, C. M. (Lieut.)
Gandesville—Camp, W. C. (Lieut.)
Glen Easton—Crow, W. F. (Capt.)
Milton—Morrison, L. C. (Capt.)

WISCONSIN

Antigo—Murphey, E. R. (Lieut.)
Arcadia—Palmer, J. A. (Capt.)
Baraboo—Sayles, L. W. (Capt.)
Eau Claire — Mason, E. L. (Capt.)
Janesville — Nuzum, T. W. (Lieut.)
La Crosse — Edwards, W. A. (Lieut.)
Milwaukee—Hall, R. M. (Lieut.)
Wenn, J. F. (Capt.)
New London—Armstrong, G. E. (Lieut.)
Oconomowoc — Loughnan, A. J. (Lieut.)
Racine—Brazeau, G. N. (Capt.)
Rice Lake—Knapp, E. J. (Lieut.)
Sullivan—Majerus, P. J. (Lieut.)

WYOMING

Lusk—Hassed, W. H. (Lieut.)
Sheridan—Selby, G. M. (Capt.)

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Gordon, Ga., from Fort McPherson, Capt. C. M. RUDOLPH, Birmingham.

To Fort McHenry, Md., from Camp Joseph E. Johnston, Lieut. J. T. ELLIS, Dothan.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. E. O'CONNELL, Birmingham.

To Hot Springs, N. C., from Eastview, Major J. N. BAKER, Montgomery.

The following orders have been revoked: *To Camp Sevier, S. C., to examine the troops* for cardiovascular diseases, from Camp Crane, Lieut. A. L. KELLY, Birmingham. *To Fort McHenry, Md.*, from Camp Crane, Capt. L. V. McVAY, Salitpa. *To Fort Snelling, Minn.*, from Camp Crane, Lieut. S. C. WOOD, Birmingham.

Arkansas

To Camp Hancock, Ga., base hospital, from Camp Gordon, Capt. R. L. SANDERS, Hot Springs.

To Washington, D. C., St. Elizabeth's Hospital, Capt. E. P. BLEDSOE, Little Rock.

California

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. T. M. HART, Los Angeles.

To Biltmore, N. C., from Camp Crane, Capt. E. H. THOMPSON, Burbank.

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Capt. L. R. WILLSON, Fresno.

To Detroit, Mich., from Fort Riley, Lieut. R. N. BRAMHALL, Fair Oaks.

To Fort Oglethorpe, from Camp Crane, Lieuts. A. L. COHN, W. E. KAY, Jr., San Francisco.

To Walter Reed General Hospital, D. C., for instruction, from Camp Cody, Capt. T. J. BERGGREN, Coronado.

To Washington, D. C., from Pittsburgh, Major P. M. THOMAS, San Francisco.

The following order has been revoked: *To Detroit, Mich.*, from Camp Crane, Lieut. J. H. SCHAEFER, Los Angeles.

Colorado

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Capts. C. F. EAKINS, Brush; F. P. GENGENBACH, Denver.

To Walter Reed General Hospital, D. C., from Army Medical School, Lieut. W. D. FLEMING, Denver.

Connecticut

To Biltmore, N. C., from Fort Oglethorpe, Capt. W. H. VAN STRANDER, Hartford.

To Washington, D. C., and on completion *to Camp Custer, Mich.*, from New Haven, Capt. D. M. LEWIS, New Haven.

The following orders have been revoked: *To Army Medical School*, from Walter Reed General Hospital, Major H. F. STOLL, Hartford. *To Camp Lee, Va.*, base hospital, from Williamsbridge, Capt. F. C. Hyde, Greenwich.

Delaware

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. V. MARSHALL, Wilmington.

District of Columbia

To Army Medical School, as Commandant, from Washington, Brig.-Gen. F. A. WINTER.

To Chicago, Ill., from the Surgeon-General's Office, Col H. D. SNYDER.

To Fort McHenry, Md., from Camp Crane, Capt. H. F. W. WARDEN, Washington.

To Hot Springs, N. C., from New Haven, Capt. A. M. MACNAMEE, Washington.

To Lakewood, N. J., from the Surgeon-General's Office, Major T. D. HURLEY.

To Washington, D. C., Surgeon-General's Office, from Army Medical School, Col. W. P. CHAMBERLAIN.

Florida

To Camp Meade, Md., from Fort Oglethorpe, Lieut. R. G. NELSON, Tampa.

To Pittsburgh, Pa., from Fort Oglethorpe, Major J. W. HARGIS, Pensacola.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Capt. T. Z. CASON, Jacksonville.

The following order has been revoked: *To Camp Sevier, S. C.*, with the board examining the troops for cardiovascular diseases, from Camp Crane, Lieut. C. R. MARNEY, Tampa.

Georgia

To Biltmore, N. C., from Fort Oglethorpe, Capt. J. T. FLOYD, Atlanta.

To Camp Abraham Eustis, Va., as camp surgeon, from Fort Oglethorpe, Lieut.-Col. C. D. COWLES, Jr.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Lieut. C. H. WALKER, Macon.

To Camp Hancock, Ga., from Fort Oglethorpe, Capt. J. T. STUKES, Americus.

To Camp Kearney, Calif., as camp surgeon, from Fort Oglethorpe, Lieut.-Col. J. E. BASTION.

To Camp Zachary Taylor, Ky., as camp surgeon, from Fort Oglethorpe, Col. J. C. GREGORY.

To Fort McHenry, Md., from Fort Oglethorpe, Capt. L. W. CHILDS, Atlanta.

To Fort McPherson, Ga., from Camp Dix, Lieut. V. G. WILLIAMS, Odessadale; from Fort Oglethorpe, Capt. A. D. LITTLE, Thomasville.

To Newport News, Va., from Fort Oglethorpe, Lieut.-Col. H. H. BAILY.

To Richmond, Va., from Camp Wadsworth, Capt. A. P. FLOWERS, Atlanta.

The following orders have been revoked: *To Fort McHenry, Md.*, from Camp Crane, Capt. E. G. ADAMS, Greensboro; Lieut. J. A. McGARITY, Augusta.

Illinois

To Camp Custer, Mich., base hospital, Lieut.-Col. J. T. CASE, Chicago.

To Camp Grant, Ill., base hospital, from Fort Oglethorpe, Capt. R. W. OAKLEY, Moline; Lieuts. W. TYLER, Chicago; E. E. BULLARD, Girard; from New Haven, Capt. E. SARGENT, Moline; Lieut. W. J. SCHOLES, Chicago.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Capt. F. P. HORAN, Evanston; Lieut. R. E. STOBIE, Chicago

To Camp Sheridan, Ala., base hospital, from Camp Custer, Capt. D. N. EISENDRATH, Chicago.

To Camp Wheeler, Ga., from Camp McClellan, Lieut. G. F. RENDLEMAN, Anna.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieuts. J. B. SONNENSCHEIN, Chicago; B. L. VILNA, Cicero.

To Colonia, N. J., from Fort Oglethorpe, Lieut. C. E. ROBB, Rock Island.

To Detroit, Mich., from Camp Logan, Capt. F. G. DYAS, Chicago; from Fort Riley Lieut. D. KLEMPTNER, Chicago.

To Fort Benjamin Harrison, Ind., from Fort McHenry, Capt. P. P. HASLITT, Marshall.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. J. R. LAVIERI, Chicago.

To Fort Douglas, Utah, from Fort Oglethorpe, Lieut. A. E. LEHNER, Chicago.

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. V. N. LA MARRE, Chicago.

To Fort Monroe, Va., from Camp Abraham Eustis, Capt. G. M. McLEAN, Chicago.

To Fort Ontario, N Y., from Camp Crane, Lieut. E. A. CORCORAN, Chicago.

To Fort Sheridan, Ill., from Camp Crane, Lieut. B. G. R. WILLIAMS, Paris; from Fort Oglethorpe, Capt. E. J. HOGLUND, Chicago.

To Fort Snelling, Minn., from Camp Crane, Lieut. J. T. MEYER, Chicago.

To Plattsburg Barracks, N. Y., from Fort Sheridan, Capt. W. H. GAMBILL, Centralia.

To Walter Reed General Hospital, D. C., from Pittsburgh, Major G. F. SUKER, Chicago.

To Washington, D. C., Surgeon-General's Office, from Camp Lee, Capt. E. A. OLIVER, Chicago; from Fort Riley, Lieut. T. J. LEMPING, Chicago.

The following orders have been revoked: *To Camp A. A. Humphreys, Va., to examine the command* for cardiovascular diseases, from Camp Sevier, Lieut. T. S. HUGGARD, Chicago. *To Camp Sevier, S. C., to examine the command* for cardiovascular diseases, from Camp Crane, Lieut. T. S. HUGGARD, Chicago. *To Fort Sheridan, Ill.*, from Fort Oglethorpe, Capt. W. F. McNARY, East St. Louis; Lieut. W. WILLIAMS, Chicago. *To Richmond, Va.*, from Camp Crane, Capt. C. A. ALBRECHT, Chicago.

Indiana

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Capt. C. C. FUNK, New Albany.

To Camp Devens, Mass., as tuberculosis examiner, from New Haven, Capt. E. A. CRULL, Fort Wayne.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. T. S. SCHILT, Bremen.

To Camp Meade, Md., base hospital, from Fort Oglethorpe, Lieut. G. C. COULBOURN, Marion Station.

To Detroit, Mich., from Camp Zachary Taylor, Capt. F. S. CROCKETT, La Fayette; from Fort Oglethorpe, Capts. W. C. SQUIER, Milton, W. H. BAKER, South Bend.

To Fort Benjamin Harrison, Ind., from Fort Oglethorpe, Capt. B. M. HUTCHINGS, Terre Haute.

To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. J. H. COOK, Terre Haute.

To Fort Snelling, Minn., from Fort Riley, Capt. W. M. STOUT, Indianapolis.

To Hoboken, N. J., from Camp Crane, Lieut. C. E. JUMPER, Terre Haute.

To Pittsburgh, Pa., from Fort Oglethorpe, Lieut. L. R. ELLARS, Peru.

To West Baden, Ind., from Fort Oglethorpe, Capt. J. B. STALKER, Borden.

Iowa

To Camp Gordon, Ga., from Fort Riley, Capt. F. P. LEEHEY, Oelwein.

To Chicago, Ill., from Fort Oglethorpe, Lieut. T. W. BLACHLEY, Centerville.

To Denver, Colo., from Fort Riley, Capt. J. G. RYAN, New Sharon.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Lieut. C. M. WRAY, Iowa Falls.

To Fort McHenry, Md., from Camp McClellan, Lieut. J. J. BEATTY, Farragut.

To Fort Porter, N. Y., from Ann Arbor, Lieut. E. P. BENEDICT, Battle Creek.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. M. T. EASTON, Conway.

To Long Beach, N. Y., from Camp Crane, Lieut. M. O. BRUSH, Shenandoah.

To Washington, D. C., Surgeon-General's Office, from Camp Wadsworth, Capt. G. H. STEELE, Belmont; from Fort Riley, Capt. H. M. AUSTIN, Wellman.

The following order has been revoked: *To Detroit, Mich.*, from Camp Crane, Lieut. W. W. MURPHY, Lewis.

Kansas

To Camp Bowie, Texas, base hospital, from New Haven, Lieut. C. A. McKINLAY, Wichita.

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Lieuts. D. L. MORGAN, Emporia; E. L. KALBFLEISCH, Newton.

To Fort Snelling, Minn., from Fort Riley, Capt. S. M. MYERS, Potter.

Kentucky

To Camp Abraham Eustis, Va., base hospital, from Fort Oglethorpe, Capt. C. A. VANCE, Lexington.

To Camp Gordon, Ga., base hospital, from Camp Wadsworth, Lieut. G. BELOTE, Mayfield.

To Colonia, N. J., from Fort Oglethorpe, Capt. W. A. BUSH, Winchester.

To Corpus Christi, Texas, from Fort Oglethorpe, Lieut. J. E. H. WILLIS, Lexington.

To Detroit, Mich., from New Haven, Lieut. W. H. ALLEN, Louisville.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. I. N. KERNS, Louisville.

Louisiana

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. C. P. HOLDERITH, New Orleans.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. G. J. D. REYNA, Jr., New Orleans.

To Fort Logan H. Roots, Ark., from Fort Oglethorpe, Lieut. J. T. NIX, Jr., New Orleans.

Maine

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. J. F. COX, Bangor.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. R. J. MORIN, Lewiston.

To Camp Jackson, N. C., base hospital, from Fort Oglethorpe, Capt. C. M. ROBINSON, Portland.

To Camp Zachary Taylor, Ky., base hospital, from Camp Greene, Capt. H. J. EVERETT, Portland.

Maryland

To Azalea, N. C., from Fort Oglethorpe, Lieut. G. G. E. CROSS, Baltimore.

To Biltmore, N. C., from Camp Sherman, Lieut. W. M. PRIEST, North East.

To Camp Jackson, N. C., base hospital, from Fort Oglethorpe, Lieut. E. P. SMITH, Baltimore.

To Camp Meade, Md., base hospital, from New Haven, Lieut. F. W. HATCHEL, Baltimore.

To Fort Des Moines, Iowa, from Fort Oglethorpe, Major C. W. HOFFMAN, Baltimore.

To Pittsburgh, Pa., from Camp Crane, Capt. E. H. TEETER, Baltimore; from Fort Oglethorpe, Lieut. W. L. RAEMORE, Baltimore.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Camp Meade, Lieut.-Col. G. L. QUALLS.

To Washington, D. C., Surgeon-General's Office, from Fort Hancock, Capt. F. K. NICHOLS, Baltimore.

The following orders have been revoked: *To Camp Sevier, S. C., to examine the command* for nervous and mental diseases, from Camp Crane, Capt. H. N. SISCO, Baltimore. *To Fort Snelling, Minn.*, from Camp Crane, Lieut. A. A. PARKER, Pocomoke City.

Massachusetts

To Army Medical School, to examine the command for cardiovascular diseases, from Camp A. A. Humphreys, Lieut. H. A. WALKER, Somerville.

To Boston, Mass., from Camp Crane, Lieut. G. A. BUCKLEY, Brockton; from Fort Oglethorpe, Lieuts. W. H. SHERMAN, Graniteville; F. H. LALLY, Milford; from New Haven, Lieut. J. E. WATERS, Gardner.

To Camp Meade, Md., base hospital, from Camp Devens, Major J. W. SCHIRMER, Boston.

To Camp Shelby, Miss., base hospital, from Camp Jackson, Major G. S. C. BADGER, Boston.

To Camp Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. J. E. GRADY, Leominster.

To East Norfolk, Mass., from New Haven, Capt. F. H. HIBBEN, Brookline.

To Fort McHenry, Md., from Fort McPherson, Lieut. D. B. COLEMAN, Wellesley; from Fort Oglethorpe, Lieut. R. J. COOK, Boston.

To Lakewood, N. J., from Camp Greene, Lieut. C. C. STURGIS, Boston.

To Madison Barracks, N. Y., from Fort Oglethorpe, Lieut. W. M. COLLINS, Lowell.

To Plattsburgh Barracks, N. Y., from Fort Oglethorpe, Lieut. M. B. RADDING, Springfield.

To Richmond, Va., from Camp Sevier, Lieut. A. A. RATTEY, Newton.

To Walter Reed General Hospital, D. C., from Army Medical School, Lieut. L. H. ROCKWELL, Boston.

To Washington, D. C., Surgeon-General's Office, from Camp Meade, Capt. W. J. HAMMOND, Boston.

To Williamsbridge, N. Y., from Fort Ethan Allen, Capt. F. T. CLARK, Westfield.

The following orders have been revoked: *To Camp Grant, Ill.*, base hospital, from Fort Oglethorpe, Capt. J. N. BOYER, Springfield. *To Lakewood, N. J.*, from Camp Crane, Lieut. E. A. ADAMS, Newton. *To Richmond, Va.*, from Camp Crane, Lieut. E. J. GRAINGER, Winthrop.

Michigan

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Lieut. R. H. SNOWDEN, Galien.

To Camp Dodge, Iowa, to examine the troops for cardiovascular diseases, from Fort Oglethorpe, Lieut. J. H. RAPP, Lansing.

To Camp Kearney, Calif., from Camp MacArthur, Capt. J. O. PARKER, Owosso.

To Chicago, Ill., from Fort Oglethorpe, Lieut. T. H. E. BEST, Detroit.

To Detroit, Mich., from Fort Oglethorpe, Lieut. J. W. WARREN, Detroit.

To Fort Benjamin Harrison, Ind., from Colonia, Major N. S. MACDONALD, Houghton.

To Fort McPherson, Ga., from Fort Oglethorpe, Lieut. L. E. BOVIK, Crystal Falls.

To Fort Sill, Okla., base hospital, from Camp Crane, Capt. K. F. MAXCY, Detroit.

To Hoboken, N. J., from Fort Oglethorpe, Capt. A. E. PATTERSON, Plymouth.

To West Baden, Ind., from Fort Oglethorpe, Capt. G. A. SEYBOLD, Jackson.

The following orders have been revoked: *To Boston, Mass.*, from Camp Crane, Major C. D. BROOKS, Detroit. *To Camp A. A. Humphreys, Va., to examine the command* for nervous and mental diseases, from Fort Oglethorpe, Lieut. J. G. GAGE, Battle Creek. *To Camp Sherman, Ohio*, from Camp Crane, Capt. L. J. PINNEY, Detroit. *To Fort McHenry, Md.*, from Camp Crane, Lieut. C. E. VREELAND, Detroit. *To Lakewood, N. J.*, from Fort Oglethorpe, Capt. F. B. MINER, Flint.

Minnesota

To Camp Meade, Md., from Fort Oglethorpe, Capt. G. L. GOSSLEE, Moorhead.

To Fort Des Moines, Iowa, from Camp Dodge, Capt. A. H. COLLINS, Duluth; from Newport News, Capt. J. L. CRENSHAW, Rochester.

To Fort McHenry, Md., from Camp Lee, Lieut. G. V. LYNCH, Winona.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. H. F. RAWLINGS, Evaleth.

To Fort Snelling, Minn., from Fort Oglethorpe, Capts. J. R. KUTH, Duluth; W. W. HIGGS, Park Rapids; from Fort Riley, Lieut. W. A. MEIERDING, Springfield.

To Walter Reed General Hospital, D. C., from Cape May, Major J. F. CORBETT, Minneapolis.

Mississippi

To Camp Sheridan, Ala., to examine the command for nervous and mental diseases, from Fort Ontario, Capt. J. H. FOX, Jackson.

Missouri

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Capt. J. E. BAIRD, Excelsior Springs.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. W. D. AUFDERHEIDE, St. Louis.

To Fort Douglas, Utah, from Fort Oglethorpe, Capt. J. H. HUMPHREY, St. Louis.

To Fort Riley, base hospital, from New Haven, Capt. F. COHEN, Lieut. J. F. BROOKE, Kansas City.

To Fort Sheridan, Ill., from Fort Oglethorpe, Capt. H. B. DAVIS, Kansas City; from New York, Capt. R. D. IRLAND, Kansas City.

To Fort Snelling, Minn., from Fort Riley, Lieuts. A. McCLORY, L. W. SCHREIBER, St. Louis.

To Fort Worden, Wash., from Fort Riley, Lieut. S. FORSTOT, St. Joseph.

To Hoboken, N. J., from Camp Joseph E. Johnston, Capt. H. S. MAJOR, Fulton.

Montana

To Army Medical School for instruction, from Fort Oglethorpe, Capt. A. G. FULLER, Missoula.

To Camp Upton, N. Y., from Camp Fremont, Capt. E. C. ANDERSON, Missoula.

Nebraska

To Camp Dodge, Iowa, base hospital, from New Haven, Lieut. A. L. BARR, Omaha.

To Cape May, N. J., from New Haven, Capt. E. H. McLEAN, Omaha.

To Fort Worden, Wash., from Fort Riley, Lieut. I. H. LEVIN, Venango.

New Hampshire

To Boston, Mass., from Fort Oglethorpe, Lieut. E. D. MIVILLE, Manchester.

To Fort McHenry, Md., from Army Medical School, Major R. J. GRAVES, Concord.

New Jersey

To Boston, Mass., from Fort Oglethorpe, Capt. J. N. RYAN, Passaic; Lieut. A. P. DONOHO, Merchantsville.

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Lieut. N. P. LOBSENZ, Passaic.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. T. SENSEMAN, Atlantic City.

To Camp Lee, Va., base hospital, from New Haven, Capt. H. E. MATTHEWS, Orange.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. W. A. BULLMAN, Red Bank.

To Detroit, Mich., from Fort Riley, Lieut. J. W. HUGHES, Atlantic City.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. R. D. VREELAND, Clifton.

To Garden City, N. Y., from Millington, Tenn., Major F. G. ANGENY, Avon-by-the-Sea.

To Hoboken, N. J., from Camp Crane, Capt. J. H. ORAM, Paterson; from Camp Wheeler, Capt. W. J. ARLITZ, Hoboken.

To Lakewood, N. J., from Camp Dix, Lieut. J. R. COMMORATO, Jersey City; from Fort Oglethorpe, Lieut. H. R. VAN NESS, Newark.

To Pittsburgh, Pa., from Fort Oglethorpe, Capt. R. D. BAKER, Summit.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to his proper station*, from Metuchen, Major H. L. KRAFFT.

To Washington, D. C., from Walter Reed General Hospital, Lieut. M. K. SMITH, Morristown.

New York

To Boston, Mass., from Fort Oglethorpe, Capt. L. H. SMITH, East Aurora; Lieut. R. L. McCREADY, New York.

To Camp Abraham Eustis, Va., base hospital, from Fort Oglethorpe, Lieut. M. E. MINTZ, New York.

To Camp Dix, N. J., base hospital, from New Haven, Lieuts. J. H. GLOBUS, S. MORSE, New York.

To Camp Grant, Ill., from Fort Oglethorpe, Lieut. M. F. HALL, Elmira.

To Camp Hancock, Ga., as tuberculosis examiner, from Camp Joseph E. Johnston, Lieut. W. B. EBERLING, Brooklyn; from the Surgeon-General's Office, Major J. T. SPRAGUE, Staten Island.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Capt. C. C. ZACHARIE, White Plains.

To Camp McClellan, Ala., base hospital, from Camp Custer, Capt. S. ERDMAN, New York; from Fort Oglethorpe, Capt. C. V. BROONS, Canandaigua.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. R. G. HAYS, Brooklyn. Base hospital, from Fort Oglethorpe, Capts. J. R. GRANT, Cincinnatus; T. J. KIEFFER, Rochester.

To Camp Sevier, S. C., base hospital, from New Haven, Capt. M. C. FIELD, Brooklyn.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. C. S. BERGMANN, West Haverstraw. Base hospital, from New Haven, Capt. R. A. LAMBERT, New York; Lieut. L. R. SISSON, Auburn.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. J. C. HUGHES, New York.

To Cape May, N. J., from Fort Oglethorpe, Lieuts. G. C. ANDERSON, New York; J. B. ELYNN, Rochester.

To Carlisle, Pa., from Camp Zachary Taylor, Lieut. J. A. HYAMS, New York; from Fort Oglethorpe, Capt. E. W. JACKSON, Rochester.

To Colonia, N. J., from Camp Crane, Capt. F. COONLEY, Staten Island; from Camp McClellan, Lieut. R. M. FIELD, Brooklyn; from Fort Jefferson, Lieut. J. SHARLIT, New York.

To Corpus Christi, Texas, from Fort Oglethorpe, Capt. P. V. COSTELLO, Brooklyn.

To Dansville, N. Y., from New Haven, Lieut. T. S. WINSLOW, New York.

To Detroit, Mich., from Camp Crane, Capt. A. S. ARMSTRONG, New York.

To East View, N. Y., from Fort Oglethorpe, Lieut. P. MARVEL, Jr., New York.

To Fort McHenry, Md., from Camp McClellan, Lieut. J. HEINE, New York; from Fort Oglethorpe, Lieuts. E. C. PLACE, Brooklyn; H. H. SHIRAS, New York.

To Fort Myer, Va., from Camp Greene, Lieut. J. G. J. GRIMLEY, New York.

To Fort Oglethorpe, from Camp Crane, Major J. E. CONBOY, New York.

To Fort Ontario, N. Y., from Fort Oglethorpe, Lieuts. A. H. PAINE, Rochester; G. L. WRIGHT, Syracuse.

To Fort Sheridan, Ill., from Walter Reed General Hospital, Capt. C. P. HUTCHINS, Kingston.

To Garden City, N. Y., from Camp Greene, Major A. M. CACCINI, New York.

To Hoboken, N. J., from Camp Sevier, Capt. J. L. BENDELL, Albany; from Fort Monroe, Major J. B. COOKE, Cooperstown; from Fort Oglethorpe, Lieuts. O. S. McKEE, Buffalo; A. F. A. DOOLING, R. PEMBERTON, New York; from New Haven, Lieut. D. M. MARKOFSKY, New York.

To Hot Springs, N. C., from Camp Crane, Lieut. J. J. MADDEN, Brooklyn.

To Lakewood, N. J., from Camp Dix, Lieuts. C. SHOCKOFF, Brooklyn; F. W. BISHOP, E. R. WARE, New York; from Camp Lee, Lieut. H. C. FURMAN, New York; from Camp Meade, Lieut. W. PHIPARD, New York; from Camp Wadsworth, Major T. W. MALONEY, Geneva; from Fort Oglethorpe, Lieut. A. B. LEVY, New York.

To Long Beach, N. Y., from New Haven, Lieut. J. L. MANGANO, Buffalo.

To Madison Barracks, N. Y., from Fort Oglethorpe, Capt. E. C. THOMPSON, Newburgh.

To New Haven, Conn., from Fort Oglethorpe, Lieut. J. J. BOLAND, New York.

To Newport News, Va., from Cape May, Capt. W. H. SANFORD, Long Island.

To Otisville, N. Y., from Fort Oglethorpe, Lieut. L. SASOVER, New York.

To Pittsburgh, Pa., from Camp Crane, Lieut. W. L. MUNSON, Granville; from Fort Oglethorpe, Capt. S. T. HUBBARD, New York.

To Plattsburg Barracks, N. Y., from New Haven, Lieut. V. R. EHLE, Gloversville.

To Walter Reed General Hospital, D. C., from New York, Major E. F. BUTLER, Yonkers.

To Washington, D. C., St. Elizabeth's Hospital, from New York, Lieut. F. S. PIERSON, Syracuse. Surgeon-General's Office, from Camp Meade, Major H. JAMES, New York; Lieut. F. N. POTTS, Buffalo; from Camp Hamilton, Capt. F. W. HUNTER, Fort Totten; from Hot Springs, Major A. H. BUSBY, New York.

To Williamsbridge, N. Y., from Camp Crane, Lieut. E. A. CLARKE, New York.

The following orders have been revoked: *To Camp Bowie, Texas*, to examine the command for nervous and mental diseases, from Camp Crane, Lieut. J. D. TRASK, Jr., New York. *To Camp Dix, N. J.*, from Fort Oglethorpe, Lieut. L. L. COHAN, Brooklyn. *To Camp Jackson, S. C.*, base hospital, from Fort Oglethorpe, Capt. C. J. DILLON, New York; Lieut. L. T. FRICKS, Brooklyn. *To Detroit, Mich.*, from Camp Crane, Lieut. R. H. OPPENHEIMER, New York. *To Fort McHenry, Md.*, from Camp Crane, Lieut. P. W. FETZER, New York. *To Fort Ontario, N. Y.*, from Fort Oglethorp, Lieut. S. MILBANK, New York. *To Fort Snelling, Minn.*, from Camp Crane, Lieuts. M. L. POLLACK, Staten Island; J. W. W. DIMON, Utica. *To Lakewood, N. J.*, from Camp Crane, Lieuts. J. W. BURTON, Alpine; G. KORNFELD, Brooklyn; J. J. YOUNG, New York. *To Middletown, Pa.*, from Fort Oglethorpe, Capt. J. H. KEVAND, Syracuse.

North Carolina

To Camp Devens, Mass., as tuberculosis examiner, from New Haven, Lieut. J. E. COCKE, Asheville.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. J. L. RAWLS, Gatesville.

To Fort Oglethorpe, from New York, Capt. N. D. BITTING, Durham.

To Hot Springs, N. C., from Camp Crane, Major E. A. LOCKETT, Winston-Salem.

Ohio

To Azalea, N. C., Lieut. E. J. BRAUN, Youngstown.

To Camp Dix, N. J., base hospital, from Camp Lee, Major R. H. BIRGE, Cleveland.

To Camp Hancock, Ga., from Fort Oglethorpe, Capt. D. S. HEYN, Cincinnati.

To Camp Holabird, Md., as camp surgeon, from Walter Reed General Hospital, Lieut.-Col. J. A. HALL, Cincinnati.

To Camp Jackson, S. C., from Fort Oglethorpe, Lieut. M. D. GODFREY, Columbus.

To Camp Meigs, D. C., to examine the troops for cardiovascular diseases, from Camp Wheeler, Lieut. C. E. LEMMON, East Liverpool.

To Camp Sevier, S. C., base hospital, from New Haven, Lieut. F. W. RILEY, Akron.

To Camp Sherman, Ohio, base hospital, from New Haven, Capt. C. W. THOMPSON, Cleveland.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. F. W. DIXON, National Military Home.

To Carlisle, Pa., from Camp Sherman, Lieut. S. S. QUITTNER, Cleveland; from Fort Oglethorpe, Lieut. G. HARTNAGEL, Delphos.

To Colonia, N. J., from Fort Oglethorpe, Capt. O. M. WARNER, Conneaut.

To Fort Des Moines, Iowa, from New Haven, Lieut. J. H. WARVEL, Bradford.

To Fort Oglethorpe, from Camp Crane, Lieut. G. T. MEEK, Columbus.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieut. J. M. THOMAS, Columbus.

To Fort Snelling, Minn., from Cape May, Capt. B. B. NEUBAUER, Cleveland.

To the retired list, from Lexington, Lieut.-Col. J. L. POWELL, Columbus.

To Washington, D. C., Surgeon-General's Office, from Fort Oglethorpe, Major A. S. McCLAIN, Lakewood.

To West Baden, Ind., from Fort Oglethorpe, Capts. H. H. FISHER, Columbus; K. F. LITTLE, Westwood; Lieut. H. A. BUDD, Cleveland; from New Haven, Lieut. R. E. COLE, Fredericktown.

The following orders have been revoked: *To Camp Meade, Md.*, base hospital, from Fort Oglethorpe, Capt. E. H. SEASON, Cleveland. *To Fort Snelling, Minn.*, from Camp Crane, Lieut. J. T. KENNEDY, Cincinnati.

Oklahoma

To Fort McHenry, Md., from Fort Oglethorpe, Capt. L. A. RIELY, Oklahoma City.

Oregon

To Fort Snelling, Minn., from Boston, Capt. C. J. McCUSKER, Portland.

The following orders have been revoked: *To Boston, Mass.*, from Camp Crane, Capt. E. A. SOMMER, Portland. *To Camp Lewis, Wash.*, base hospital, for instruction, from Camp Crane, Capt. R. E. L. HOLT, Portland.

Pennsylvania

To Army Medical School, from Fort Oglethorpe, Capt. L. S. WALTON, Altoona.

To Camp Benning, Ga., base hospital, from New Haven, Lieut. G. W. RAMSEY, Washington.

To Camp Bowie, Texas, as orthopedic surgeon, from Camp Joseph E. Johnston, Lieut. K. A. BOWMAN, Johnstown.

To Camp Dix, N. J., from Fort Oglethorpe, Lieut. A. S. CANTOR, Dickson City. Base hospital, from Fort Oglethorpe, Capt. W. J. MERRILL, Philadelphia.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. J. M. DICKSON, Gettysburg.

To Camp Lee, Va., base hospital, from the Surgeon-General's Office, Major R. H. BOLLING, Philadelphia.

To Camp Meade, Md., to examine the command for nervous and mental diseases, from Camp Crane, Lieut. P. K. HELLER, Dixmont.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. F. R. BRADEN, Coraopolis.

Camp Zachary Taylor, Ky., base hospital, from New Haven, Lieut. G. D. HEIST, Philadelphia.

To Cape May, N. J., from Fort Oglethorpe, Lieut. H. W. SCARLETT, Philadelphia; from New York, Lieut. M. McCUTCHEON, Philadelphia.

To Chicago, Ill., from Camp Crane, Lieut. C. B. LAMP, Seminole.

To Colonia, N. J., from Fort Oglethorpe, Lieut. R. F. WEAVER, St. Clair.

To Fort Benjamin Harrison, Ind., from Camp Crane, Capt. C. A. HILL, Pittsburgh; from Fort Oglethorpe, Lieut. J. G. WARNER, Monongahela.

To Fort McHenry, Md., from Camp Shelby, Lieut. W. F. WHITE, Wellsboro; from Fort Oglethorpe, Lieut. O. H. WILSON, Philadelphia; from New Haven, Lieut. D. A. GOODMAN, Old Forge.

To Fort Oglethorpe, from Camp Crane, Lieut. J. S. MORGAN, Crafton.

To Fort Sheridan, Ill., from Fort Oglethorpe, Lieuts. M. J. McCALLUM, Erie; W. R. LEVERING, Stroudsburg.

To Lakewood, N. J., from Camp Crane, Lieut. J. H. BARTLELY, Jr., Philadelphia; from Camp Meade, Lieut. C. E. CASE, Philadelphia; from Fort Oglethorpe, Lieut. H. W. JONES, Philadelphia.

To Newport News, Va., from Fort Oglethorpe, Lieut. W. M. YOST, Rochester.

To Richmond, Va., from Camp Wadsworth, Lieut. S. SINGER, Philadelphia.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capts. W. E. LEE, Philadelphia; W. C. SHAW, Ridgeway.

To Washington, D. C., Surgeon-General's Office, from Camp Custer, Capt. J. G. TAYLOR, Tunkhannock. On completion *to Camp Pike, Ark.*, from New Haven, Capt. W. L. STEEN, New Castle.

The following orders have been revoked: *To Camp Gordon, Ga.*, to examine the troops for nervous and mental diseases, from Fort Oglethorpe, Lieut. W. C. CHANEY, Philadelphia. *To Camp Henry Knox and Camp Zachary Taylor, Ky.*, to examine the troops for cardiovascular diseases, from Fort Oglethorpe, Capt. C. FALKOWSKY, Jr., Scranton. *To Camp Sevier, S. C.*, to examine the troops for cardiovascular diseases, from Camp Crane, Lieut. E. T. JONES, St. Clair. *To Detroit, Mich.*, from Camp Crane, Lieut. M. B. MAGOFFIN, Pittsburgh. *To Fort Snelling, Minn.*, from Camp Crane, Lieuts. J. L. ZIMMERMAN, Hershey; D. BEVERIDGE, Washington. *To Lakewood, N. J.*, from Camp Crane, Capt. L. M. HARTMAN, Jr., York; Lieuts. M. KEMP, Catasavana; E. H. BEDROSSIAN, Philadelphia. *To Richmond, Va.*, from Camp Crane, Lieut. C. A. GUNDY, Lewisburg.

Rhode Island

To Canal Zone, from Azalea, Major G. W. GARDNER, Providence.

To Markleton, Pa., from New Haven, Capt. H. G. PALMER, Providence.

South Carolina

To Army Medical School, from Fort Oglethorpe, Lieut. E. M. DIBBLE, Marion.

To Biltmore, N. C., from Fort Oglethorpe, Capt. W. S. ZIMMERMAN, Spartanburg.

To Pittsburgh, Pa., from Camp Sevier, Lieut. R. CATHCART, Charleston.

To Washington, D. C., Surgeon-General's Office, from Camp Meade, Major H. C. PARSONS, Watertown.

Tennessee

To Camp Fremont, Calif., base hospital, from New Haven, Lieut. G. T. WILHELM, Memphis.

To Camp McClellan, Ala., base hospital, from Camp Crane, Lieut. A. T. SIKES, Nashville.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. W. STEELE, Chattanooga.

To Cape May, N. J., from Fort Oglethorpe, Capt. J. H. DYER, Wartrace.

The following order has been revoked: *To West Baden, Ind.*, from Camp Crane, Lieut. H. K. ALEXANDER, Nashville.

Texas

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. L. H. LANIER, Texarkana.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Major R. F. SAUNDERS, Fort Worth.

To Camp Kearney, Calif., base hospital, from Fort Oglethorpe, Lieut. J. R. ELLIOTT, Palacios.

To Fort Logan, Texas, base hospital, from New Haven, Lieut. C. H. HENDRY, Galveston.

To Camp Shelby, Miss., base hospital, from Camp Crane, Lieut. E. ACKER, Pasadena; from Camp MacArthur, Major H. C. BIERBOWER.

To Corpus Christi, Texas., from Fort Oglethorpe, Capt. W. E. CHILTON, Fort Worth; Lieut. E. H. NEWTON, Corsicana.

To Fort Sam Houston, Texas, from New Haven, Capt. L. YATER, Cleburne.

To Fort Sill, Okla., base hospital, from New Haven, Lieut. G. TURNER, Iredell.

To Fort Worden, Wash., from Fort Riley, Lieut. A. J. SHARP, Franklin.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Rochester, Minn.*, for instruction, from Camp MacArthur, Major W. P. DAVENPORT.

The following order has been revoked: *To Camp Bowie, Texas*, base hospital, for instruction, from Camp Crane, Capt. A. M. McELHANNON, Sherman.

Utah

To Camp MacArthur, Texas, base hospital, from New Haven, Capt. J. J. GALLIGAN, Salt Lake City.

To Denver, Colo., from New Haven, Lieut. L. S. MERRILL, Brighton.

Vermont

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. C. L. GANNON, Burlington.

To Detroit, Mich., from Franklin, Ind., Capt. N. J. DELEHANTY, Rutland.

To Long Beach, N. Y., from New Haven, Lieut. A. L. FOGG, Underhill Center.

Virginia

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Capts. A. P. DERBY, Monrovia; J. D. OSBORNE, Petersburg; C. M. EDWARDS, Richmond.

To Cape May, N. J., from New York, Lieut. J. S. WEITZEL, Richmond.

To Fortress Monroe, Va., from Camp Lee, Capt. E. P. ODEND'HAL, Wytheville.

To Garden City, N. Y., from Washington, Major J. N. BARNEY, Fredericksburg.

Washington

To Carlisle, Pa., from Camp Crane, Major F. P. GARDNER, Seattle.

To Fort Monroe, Va., from Camp Crane, Capt. C. R. McCREERY, Tacoma.

To San Francisco, Calif., Letterman General Hospital, from New York, Major W. N. KELLER, Fort Steilacoom.

West Virginia

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieut. R. G. WERNER, Parkersburg.

To Charleston, S. C., from New Haven, Lieut. D. H. HILL, Charleston.

To Fort McPherson, Ga., from Camp Crane, Lieut. H. H. ESKER, Clarksburg.

To Hoboken, N. J., from Fort Oglethorpe, Lieut. R. H. WALKER, Charleston.

The following orders have been revoked: *To Boston, Mass.*, from Camp Crane, Capt. W. S. FULTON, Wheeling. *To Lakewood, N. J.*, from Camp Crane, Lieut. C. P. S. FORD, Hansford.

Wisconsin

To Azalea, N. C., from Fort Oglethorpe, Lieut. R. L. PREES, Cambria.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. R. J. GOGGINS, Oconto Falls.

To Fort Snelling, Minn., from New Haven, Lieut. L. R. FOWZER, Manawa.

The following order has been revoked: *To Camp Gordon, Ga.*, to examine the command for cardiovascular diseases, from Fort Oglethorpe, Lieut. R. E. FITZGERALD, Milwaukee.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Asst. Surg. General B. S. WARREN, represent the Service and deliver an address at an open forum of the Birmingham, Ala., Civic Association on Jan. 13, 1919.

Surg. B. W. BROWN, relieved at Seattle, Wash., proceed to Los Angeles, Calif., and assume charge of the Service at that port.

Surg. FRIENCH SIMPSON, proceed to the Mobile Quarantine Station and assume temporary charge for a period of about one month.

Passed Asst. Surg. BAYLIS H. EARLE, relieved at Port Townsend, Wash., proceed to Portland, Ore., and assume charge of the Service at that port.

Asst. Surg. C. J. McDEVITT, relieved at San Francisco, Calif., proceed to Port Townsend, Wash., and assume charge of the quarantine service at that place.

Asst. Surg. B. E. ROBERTS, relieved from further duty in epidemiological work in connection with influenza and proceed to marine hospital, Stapleton, N. Y.

Acting Asst. Surgeons E. E. ADEL, S. B. BOWNE, H. R. CARROLL, MARION GLENN, W. P. S. HENRY, E. J. KEHOE and CORA A. MOON, directed to proceed to Harrisburg, Pa., for duty in connection with influenza control.

Acting Asst. Surg. W. S. Ritenour, relieved at Anniston, Ala., proceed to Raleigh, N. C., for duty in extracantonment sanitation.

Acting Asst. Surg. L. J. ZELLER, proceed to Harrisburg, Pa., for duty in connection with influenza control.

Asst. Epidem. W. K. SHARP, proceed to Centerville, Ala., to investigate a reported outbreak of smallpox.

Tech. Asst. A. SEIDELL, proceed to Boston, Mass., in connection with development of poisonous gases.

Scien. Asst. I. B. KRAUSE, proceed to Philadelphia, Pa., for duty with the Emergency Fleet Corporation in connection with the sanitation of shipyards.

Scien. Asst. TOM PAISLEY, proceed to Hope, Ark., for survey concerning influenza control and methods for the control of malaria.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Camp Grant as Reconstruction Post.—January 2, it was announced that Camp Grant has been selected among the eighteen cantonments designated as locations for reconstruction hospitals for the education and curative treatment of convalescent soldiers. Capt. Rouel H. Sylvester, U. S. Army, has been named as educational director for the new project.

Tuberculosis Offices Consolidated.—The Chicago and Springfield offices of the Illinois Tuberculosis Association will be consolidated immediately and operated in Springfield in the future. It is said that forty counties of Illinois have already taken advantage of the tuberculosis act which authorizes a county to establish and maintain a sanatorium for the care of patients suffering from tuberculosis.

Survey of Itinerant Physicians.—The director of the State Department of Registration and Education has addressed a letter to the secretary of each county medical society in the state asking information regarding the activities of traveling physicians who operate in the state of Illinois. The information desired is: (1) the names; (2) samples of advertising material used; (3) itineraries announced; (4) home addresses of itinerant physicians, and (5) information regarding citizens who may have fared ill at the hands of such practitioners.

New County Officers.—At the annual meeting of the Kankakee County Medical Society held in Kankakee, December 19, Dr. Eugene Cohn, superintendent of the Kankakee State Hospital, was elected president; Dr. Daniel J. O'Loughlin, vice president, and Dr. James T. Rooks was reelected secretary-treasurer, all of Kankakee.——At the annual meeting of the Adams County Medical Society held in Quincy, December 11, Dr. Adelbert M. Austin, Mendon, was elected president; Drs. Henry P. Beirne and Earl L. Caddick were elected vice presidents; Dr. Elizabeth B. Ball was reelected secretary, and Dr. Charles E. Ericson was elected treasurer, all of Quincy.

Illegal Practitioners Convicted.—Two illegal practitioners of medicine, Charles J. Brutus and F. W. Lensemeyer, were convicted in the county court of Champaign County, recently, for violating the Medical Practice Act through action taken by the Department of Registration and Education of the State of Illinois. Brutus is an old offender, but Lensemeyer is a newcomer, having come to Illinois from Michigan about a year ago. Both cases were bitterly contested. Mr. Morris of the firm of Morris and Hartwell of LaCrosse, Wis., general attorneys for the National Association of Chiropractors, and two local attorneys represented the defendants. Hon. Louis A. Busch, state's attorney of Champaign County, conducted the prosecution for the state and is said to deserve great credit for the able manner in which he handled the cases. Regular motions for new trials were made by the defendants. If the motions are denied, the amount of the fines to be imposed on Brutus and Lensemeyer will be announced by the court.

Chicago

Held for Selling Habit-Forming Drugs.—Dr. Edmond D. Converse was arrested, December 30, after having, it is alleged, pleaded guilty to the sale of 600 grains of heroin to a young man and woman at his office.

Personal.—Dr. Frank Smithies has been appointed medical consultant to the United States Marine Hospital at the port of Chicago, by the Surgeon-General of the U. S. P. H. S.——Dr. Walter S. Haines has been appointed a state food standard officer.

Report on the Influenza Epidemic.—The entire staff of the department of health of the city has collaborated in a complete report of the 1918 epidemic of influenza in a pamphlet of 110 pages. As far as the city was concerned, the epidemic began to show itself in the death returns, September 21, reached its height, October 17, and gradually declined until for the week ending November 23, the death rate had again reached 16 per thousand of population, which is about the normal rate. From September 21 to November 16, there were reported 37,921 cases of influenza and 13,109 cases of pneumonia, a total of 51,030 cases. The report details the efforts of the department in cooperation with the state and national health departments and the citizens in combating the epidemic, and in charts, tables and text analyzes the figures from all aspects—age, sex, civil state, nationality, etc.—and gives for comparison figures and other information in regard to the epidemic in other cities and in the Army camps. The pamphlet makes an interesting permanent record of the great epidemic, which has not yet entirely subsided, but shows still its effects in the sickness and mortality rates through recrudescences, from time to time, of greater or less extent.

INDIANA

Tuberculous Clinics to Be Established.—At a recent meeting of representatives of the city board of health, Chamber of Commerce and the Marion County Society for the Prevention of Tuberculosis, Indianapolis, it was suggested that a chain of tuberculosis clinics should be established in Indianapolis, that a permanent hospital for advanced cases of tuberculosis, both in white and colored people, should be provided as a supplement to Sunnyside Sanatorium, and that steps should be taken at once to battle against the rapid inroads of the disease.——The citizens of Lake County have voted in favor of the expenditure of $100,000 for the erection of a tuberculosis hospital. This hospital will also be open to returned soldiers.

Personal.—Dr. Hugh D. Wood, Angola, is reported to be critically ill.——Dr. Lewis L. Williams has been appointed city health commissioner of Brazil.——Dr. Thomas W. Moorhead, Terre Haute, has declined a position on the city board of health offered him by the mayor.——In the case of Dr. Nelson B. Ross, Muncie, who served nine months in the state penitentiary for murder, and who sought clemency, the state department has continued the case.——Dr. A. W. Tobias, Elwood, charged with assault and battery is said to have been assessed a fine of $100 and to have been sentenced to imprisonment for six months on the Penal Farm. The latter part of the sentence was, however, suspended and the prisoner paroled.

Sanatorium Notes.—The Antituberculosis Society of Noble County is negotiating with similar societies of Allen and DeKalb counties with a view of obtaining a joint hospital for the treatment of tuberculosis.——The Vanderburg County Council has decided that it cannot at present accept the Boehne Hospital, Evansville, as a county institution. It is voted, however, that in realization of the value of the institution, $10,000 be appropriated to meet its current expenses until the beginning of the year. It is also decided that,

beginning January 1, an appropriation of $2,000 per month will be paid to the Vanderburg County Antituberculosis Society for the maintenance of the institution. This will provide a fund of $25,500 for maintenance during 1919.

MAINE

Survey of Lewiston and Auburn.—The state department of health has caused to be made health surveys of Lewiston and Auburn, and an analysis of the local health organization and administration, and recommends a number of things for the improvement of the service in both places. Both cities have part time boards of health composed of men not versed in sanitary science and are without expert advisers in such matters. The administration of public health work in these places is therefore said to be inefficient, wasteful, and does not obtain satisfactory results. The sanitary problems of the two cities are identical and they may be classed as one, and the following personnel for a modern health department for both is recommended: one expert health officer, one full time bacteriologist, two sanitary inspectors, three public health nurses and a clerk. Such a department would cost to maintain approximately $17,000. A number of recommendations are made with reference to milk and food inspection, school inspection, vital statistics, waste disposal and the sewerage of both cities on a definite plan, etc.

MARYLAND

Venereal Deteution House to Be Established.—The state health department is perfecting plans for the establishment in the immediate future of a house of detention where persons affected with venereal disease may be placed for observation and treatment. At present there are two clinics in Baltimore, one at the dispensary of Mercy Hospital and the other at the dispensary of Johns Hopkins Hospital.

Personal.—Brig.-Gen. William S. Thayer, M. C., U. S. Army, who has been serving in France, will, on his return to this country within the next two weeks, resume his duties as professor of medicine of the Johns Hopkins Medical School. Dr. Thayer will take the place of Dr. Theodore C. Janeway, who died several months ago while serving on the staff of the Surgeon-General.——Dr. B. Holly Smith, Baltimore, has been reelected president of the State Game and Fish Protective Association.——Dr. Arthur G. Barrett, Baltimore, has been appointed chief medical examiner of the State Industrial Accident Commission, to succeed Major Robert P. Bay, who has resigned to enter the military service.

Influenza Increasing in Frederick County.—A recrudescence of influenza has become acute in some sections of Frederick County. The localities where the disease is worse are Walkersville, Urbabam and Rocky Ridge. Dr. William E. Todd, Hagerstown, sent by the state board of health, is assisting Dr. Joseph W. Long at Walkersville, and Dr. John D. Nichodemus, Walkersville, who relinquished his practice and retired several years ago, is also helping to fight the disease. Health Officer Dr. T. Clyde Routson, Buckeystown, stated that while many cases are scattered over the country, there was no reason for alarm, but abundant reason to use every precaution against the spread of the epidemic. He has advised against church funerals in cases of death from influenza. A request has been made to the state board of health for a physician at Urbana.

U. S. General Hospital No. 7 to Be Enlarged.—Plans are under way to erect five new buildings and to enlarge to twice its present capacity United States General Hospital No. 7, which is at Evergreen Junior, the residence in Guilford loaned the government by Mrs. T. Harrison Garrett as a recuperation center for blinded American soldiers. Evergreen Junior is not merely a hospital. It is an institution where men who have been suddenly plunged into blindness and despair are physically and mentally rehabilitated for civil life. Follow-up work is carried on, the soldier being followed into civil life and his surroundings arranged in a way calculated to insure his success. Lieut.-Col. James Bordley has general supervision of the work being done at the hospital assisted by Major Nicholas I. Ardan, M. C., commanding officer of the medical and military staff; Charles F. F. Campbell, director of the Red Cross Institute Building, and Harold Molter, educational director.

MASSACHUSETTS

Housing Service Created.—Health Commissioner Woodward of Boston announces that a group of sanitary inspectors in the service of the health department has been detailed for the more efficient and economical execution of the housing laws that are enforcable by the health department. The city at present is divided into twenty-nine districts, and a sanitary inspector is assigned to each who is to be responsible for the enforcement within his district of all statutes, regulations and orders pertaining to sanitation, the housing regulations being only incidental to his work. Under the proposed plan a larger district will be assigned to each inspector, who is to look after only housing conditions. The housing service will have to do particularly with the location, plan, structural condition and number of occupants of buildings so far as these features affect the health of the occupants, and a program of work will be laid down to correct as rapidly as possible objectionable housing conditions. The work will tend to define the needs of the city as to additional housing legislation.

MINNESOTA

Personal.—Dr. Cornelius Williams, St. Paul, is reported to be critically ill in St. Luke's Hospital with septicemia.——Dr. Ignatius J. Murphy, St. Paul, for five years field secretary of the Minnesota Public Health Association, and editor of the *Minnesota Health Journal*, has located at Aitkin.

Red River Valley Physicians Meet.—The quarterly meeting of the Red River Valley Medical Society was held in Crookston, December 27. Influenza was the chief subject of discussion. Dr. Franklin M. Dryden, Crookston, was elected president, Dr. Olaf Ed. Bratrud, Warren, secretary, and Dr. Arthur A. Kahala, Crookston, treasurer.

Southern Minnesota Association to Meet.—The annual meeting of the Southern Minnesota Medical Association will be held in Mankato, January 20 and 21, under the presidency of Dr. Melvin S. Henderson, Rochester. The annual banquet will be held on the evening of the first day and on this occasion the presidential address will be delivered, on "Fractures Considered as Potential Deformities." Dr. William J. Mayo, Rochester, will speak on "Some of the Hospitals in London with Special Reference to the Surgical Treatment of Fistula-in-ano as Perfected at St. Mark's." The annual business meeting will be held on the morning of the second day and will be immediately followed by the scientific program.

NEW YORK

New Hospital Recommended for West Point.—Col. William H. Haskin, M.D., U. S. Army, at a hearing before the House Military Affairs Committee, December 31, recommended that $465,000 be appropriated for a new hospital at West Point.

Personal.—In the suits brought against Dr. Corden T. Graham, Rochester, by Mr. and Mrs. Giuseppe De Prima, for damages said to have been sustained from roentgen-ray burns while undergoing examination, decision is said to have been filed affirming judgments for $2,000 and $1,000, respectively, against the defendant.——Dr. William H. Murray, Albany, has been reappointed postmaster of Albany for a period of four years.——Dr. Frederick R. Smith, Rochester, has been elected president of the New York Motor Federation convention.

New Officers.—The following officers of county medical societies have recently been elected:

Erie County: president, Dr. James E. King; vice presidents, Drs. Earl P. Lothrop and Arthur G. Bennett; secretary, Dr. Franklin C. Gram (reelected for the twenty-fifth consecutive term), and treasurer, Dr. Albert T. Lytle, all of Buffalo.

Albany County: president, Dr. Charles H. Moore, Albany; vice president, Dr. William B. Sabin, Watervliet; secretary, Dr. Percival W. Harrig, Albany, and treasurer, Dr. Joseph A. Cox, Albany.

Rensselear County: president, Dr. Christopher J. Patterson; vice president, Dr. William J. Fleming; secretary, William Quirk, Jr., and treasurer, Dr. Russell F. Benson, all of Troy.

Utica Medical Library Association: president, Dr. Harry T. Remmer, Utica; vice president, Dr. William O. Weiskotten; secretary, Dr. John Gromann; treasurer, Dr. Arthur M. Johnston, and librarian, Dr. Frederick T. Owens.

New Governor on Public Health Measures.—In his inaugural address, Gov. Alfred E. Smith clearly defined his policy in reference to social and health legislation. He recommends the passage of legislation to lift labor out of the category of commodities or articles of commerce and urges legislation that will afford adequate protection to women and children. He recommends the establishment of a minimal wage commission who shall serve without compensation and who shall have the power to fix the living wage to be paid to women and minors. He recommends that the compensation law be amended in keeping with the constitutional

provision, to the end that occupational diseases and injuries may be subject to its provisions. Governor Smith strongly urges the enactment of a health insurance law, which he believes will result in greater precautions being taken to prevent illness and disease, and to eliminate the consequent waste to the state therefrom. He believes also that proper provision should be made for maternity insurance and points out that other countries are far ahead of us in this respect.

New York City

Harvey Society Lecture.—The second lecture of the current series of the Harvey Society Lectures, to be delivered, January 11, at the New York Academy of Medicine, is by Col. Eugene R. Whitmore, M. C., U. S. Army, on "Infectious Diseases in the Army."

Personal.—The report in the issue of December 21, that Dr. Sigmund Pollitzer had sustained a fracture of the skull in an automobile accident, was incorrect. Dr. Pollitzer states that he was in an accident and received a severe concussion of the brain, and was taken unconscious to the hospital, but did not have a fracture of the skull, and reported for duty three days after the accident.——Dr. Saul J. Selkin and Isaac Glassman were slashed with a razor by an insane patient, December 25.

Slight Recrudescence of Influenza.—The number of new cases of influenza reported to the health department has increased considerably during the week ending January 4, there being about double the number of cases reported for that date as compared with the daily average of the past four weeks. Health Commissioner Copeland had prophesied that there would be an increase in influenza and pneumonia following the arrival of the United States Navy and the attendant celebration, owing to the conditions of crowding and exposure that inevitably accompany such an occasion.

New Officers.—At the annual meeting of the Medical Society of the County of Kings, December 17, Dr. Stephen H. Lutz was elected president; Drs. Robert L. Moorhead and John A. Lee, vice presidents; Dr. Charles E. Scofield, secretary, and Dr. Alfred Bell, treasurer, all of Brooklyn.——At the annual meeting of the Queens-Nassau County Medical Society, December 17, Dr. L. Howard Moss, Richmond Hill, was elected president; Dr. Arthur D. Jaques, Lynbrook, was elected vice president, and Dr. James S. Cooley, Mineola, secretary-treasurer for many years, was reelected.——At the annual meeting of the Richmond County Medical Society, Dr. John D. Lucey was elected president; Dr. Daniel P. MacGuire, vice president; Dr. John S. Ware, secretary, and Dr. Edward D. Wisely, treasurer, all of Staten Island.

Annual Reports of New York Academy of Medicine.—At the stated meeting of the New York Academy of Medicine, January 2, Dr. Walter B. James, who has been president for four years, retired and Dr. George David Stewart assumed the duties of the office. The annual reports of officers, committees, etc., for the year 1918 were presented. The report of the president showed that in spite of the war conditions the usual activities of the academy had gone on without interruption. An attendance at the meetings that was quite equal to that of other years testified to a growing interest in them on the part of the medical public. The project for building a fireproof addition to the building on the adjoining lot has necessarily been held in abeyance during the war. The plans, however, have been drawn and are now being completed in detail. In spite of the fact that members absent in the national service have largely availed themselves of the opportunity of having their dues remitted and of certain unusual expenses, the academy has been able to continue its activities throughout the year without a deficit. The Academy Extension Fund is not quite adequate to build and equip the proposed new structure and it is hoped that Fellows will subscribe sufficient additional funds to make this possible.

OHIO

Academies Elect Officers.—At the annual meeting of the Columbus Academy of Medicine, December 20, Dr. John H. J. Upham was elected president, Dr. William F. Whitten, vice president, and Dr. James A. Beer, secretary-treasurer.——At the annual meeting of the Cleveland Academy of Medicine, Dr. Frank Oakley was elected president, and Dr. Jacob E. Tuckerman, vice president.

Personal.—Dr. Thurman R. Fletcher, Columbus, Vinton County, has been appointed chief medical examiner of the State Industrial Commission.——Dr. Frank H. Lord, assistant physician of the Oxford Retreat, has resigned and taken charge of a sanatorium near Dayton.——Dr. Hugh H. Dorr, Grove City, fourth assistant medical examiner, has been promoted to first assistant medical examiner of the State Industrial Commission.——Dr. Guy H. Williams, Columbus, for fifteen years physician and assistant superintendent of the Columbus State Hospital, has been appointed superintendent of the Cleveland State Hospital where he has been acting superintendent.——Dr. George W. Martin, Portsmouth, who has been critically ill with pneumonia, is reported to be improving.——Drs. George H. Schomaker, Cincinnati, Mark E. Bowles, Charles A. Stammel, and Estella M. R. Caldwell have qualified for permanent appointment as district physicians of the health department.

OKLAHOMA

Personal.—Capt. Henry D. Shankle, M. C., U. S. Army, Oklahoma City, sustained serious injuries, November 19, by the overturning of his automobile.

Advocates Sanatoriums.—Dr. John W. Duke, Guthrie, state health commissioner, has endorsed the plan of establishing sanatoriums for tuberculosis patients in Oklahoma.

New Officers.—At the annual meeting of the Pontotoc County Medical Society the following officers were elected: president, Dr. Leander M. Overton, Fitzhugh; vice president, Dr. Bedford F. Sullivan, Ada, and secretary-treasurer, Dr. Samuel P. Ross, Ada.

PENNSYLVANIA

Cited for Bravery.—Miss Cora S. Moyer, Fleetwood, a nurse in the American Army overseas, has been cited for bravery under fire by General Pershing.

Personal.—Dr. Edward F. White, Reading, has been appointed resident physician at the Hamburg Sanatorium.——Dr. Carl H. Metzger, Altoona, has been reappointed police surgeon and medical member of the Civil Service Examining Board of Altoona, to succeed Dr. Louis E. McKee, who has resigned.——Dr. Jacob I. Roe has been elected president and Dr. Peter P. Mayock, secretary of the Medical Advisory Board of Wilkes-Barre Contagious Disease Hospital.

Philadelphia

Public Health Service Work.—At the meeting of the College of Physicians, December 27, Senior Surgeon Charles E. Banks, U. S. P. H. S., Washington, D. C., read a paper entitled, "Reconstruction Program of the Public Health Service."

Personal.—Major Charles H. Frazier, who was commissioned a major at the beginning of the war in the Medical Corps in the Army and who was attached to the Cape May Hospital as chief of the surgical division, has been appointed general consultant in neurologic surgery to the Surgeon-General of the Army.——Dr. George E. deSchweinitz has been appointed general consultant in ophthalmologic surgery to the Surgeon-General.——Dr. A. J. Ellis, associate professor of pathology in Jefferson Medical College, will go to Siam to organize the department of pathology in the Royal University at Bangkok.——Dr. H. C. Wood, Jr., is reported to be ill at the University Hospital with typhoid fever.——Dr. Dorothy Child, Germantown, has returned after several months' service with the pediatric unit in France.

GENERAL

New Member of National Board.—At a recent meeting of the National Board of Medical Examiners, Dr. William H. Welch, Baltimore, was elected a member of the board, succeeding Dr. Henry Sewall, Denver, resigned.

Western Surgeons Elect Officers.—At the twenty-eighth annual meeting of the Western Surgical Association, held in Chicago, December 21, the following officers were elected: Dr. Roland Hill, St. Louis, president; Drs. Emil G. Beck, Chicago, and George N. Kreider, Springfield, Ill., vice presidents; Dr. Arthur T. Mann, Minneapolis, secretary-treasurer, and Drs. Jabez N. Jackson, Kansas City, Mo.; Edward Evans, LaCrosse, Wis., and Edward S. Judd, Rochester, Minn., members of the executive council. The next meeting of the association will be held in Kansas City, Mo.

Bequests and Donations.—The following bequests and donations have recently been announced:

Presbyterian, and Sloane Maternity hospitals, New York City, each $10,000; Post-Graduate, Manhattan Eye and Ear, Women's and St. Andrew's hospitals, New York City, each $5,000 by the will of James P. Steers.

French government institutions for blind and helpless, crippled soldiers, $96,500; Asylum of St. Vincent de Paul, Ecole maternelle, Paris, and the New York Hospital, each $3,820 by the will of Jean de Bourbis.

Philadelphia Home for Incurables, Women's Medical College of Pennsylvania, Women's Hospital, Charity Hospital, Philadelphia, and Norristown, Pa., Industrial Home for Blind Women, each $10,000 by the will of Mary H. Wood.

Associated Charities, Children's Free Hospital, and Marquette University, Milwaukee, each one third of the income accruing from $75,000 worth of stock in the Cudahy Company, by the will of Miss Helen Cudahy.

Staten Island Hospital, $5,000 by the will of Stacey Richmond.

FOREIGN

Deaths in the Profession Abroad.—Dr. **Rafael Rubirosa,** a graduate in medicine of the University of San Domingo, who had been taking postgraduate work in New York City; aged 32; died in the Manhattan State Hospital, December 6, from chronic endocarditis.

Nobel Prize in Physics.—This prize, for 1917, has been awarded by the Swedish Academy to Prof. C. G. Barkla, professor of natural philosophy in the University of Edinburgh, for his work on roentgen rays and secondary rays. The prize in physics for 1918, and that in chemistry for 1917 and 1918, have been reserved.

Medical Victims of Influenza in Spain.—The *Medicina Ibera* of Madrid states that 200 physicians have died from influenza during the recent epidemic of influenza in Spain. It cites a notice in the daily press to the effect that the authorities have appropriated a sum of money to be distributed among the widows and orphans of these medical victims of the epidemic. The sum appropriated is 2,000 pesetas; that is at the rate of 10 pesetas per family. A Spanish peseta is equivalent to the French franc, not quite 20 cents. Our exchange comments on this that the lack of organization and union among physicians is responsible for the profession being held in such slight esteem in political circles as is evidenced by this appropriation.

Spain Gives Traveling Scholarships.—The *Revista de medicina y cirugia prácticas* states that among this year's traveling scholarships recently announced by the official *Gaceta* at Madrid is one to Dr. J. Bosch, for a year's study at the University of Berne, Switzerland, on the physiology and pathology of nutrition. Another is for Dr. J. M. Riezgo, for six months' study of biologic chemistry at a Swiss university, and another for Dr. V. M. Nogueras, for six months' study of artificial appliances and reeducation of the maimed, in France and Switzerland. The other scholarships go to recent graduates, for six or eight months' study in France or Switzerland, of the effects of war wounds of the eyes, or the pathology of the endocrine system, or a year in Switzerland for study of the action of the radium and roentgen rays on the ovaries and gynecologic tumors.

Prizes Awarded by the French Académie de Médecine.—At the annual meeting, Dec. 10, 1918, the Académie de Médecine had fifty-seven prizes to distribute but, on account of the war, no competing articles had been presented for fifteen of the prizes and none deemed worthy of the prize for eleven others. The remaining thirty-one prizes were awarded to physicians of Paris or other French cities with the exception of one prize part of which was given to Messerli of Lausanne, Switzerland, for his systematic records of the physical measurements of Swiss soldiers. The Monbinne prize, given for the best report of a scientific mission, was divided between a French colonial medical officer and Dr. J. N. Roy, physician at the Hotel Dieu of Montreal, for his work on the eye affections in natives of Africa suffering from syphilis or trypanosomiasis. Honorable mention was accorded a work by a medical woman, Dr. Condat, on leukocytolysis. Honorable mention was also accorded a work on the changes in the bones in leprosy, by Dr. J. A. Honey of New Haven. The money prizes awarded ranged from 300 to 7,200 francs each. The Académie has held no elections during the war, but at this meeting it elected sixteen regular members to fill vacancies in the sections, and elected Clemenceau member at large, with M. Gross of Nancy as national associate member, and Dr. W. S. Thayer of Baltimore as foreign associate. During the year just closed, the Académie lost five regular members, including Pozzi and Gaucher; two national associate members, Ehrmann and Grasset; with four national corresponding members, including Régis, Maurel and Jeannel, and three foreign corresponding members, Istrati of Bucharest, Revilliod of Geneva, and Guareschi of Turin.

Influenza in South Africa.—Newspapers from Cape Town and Johannesburg, South Africa, covering the latter part of October describe the influenza situation as extremely serious. Although the proposal to close up all places of business was defeated at a special meeting of the Chamber of Commerce of Cape Town, yet the town was practically at a standstill as far as business was concerned and the streets were deserted. The number of cases of influenza was large and the deaths were so many that the bodies could not be taken care of. Many were collected on the beach awaiting burial. Physicians, nurses and volunteer aids were overworked, and many patients died without having any attention of any sort. Nurses would visit houses among the natives and perhaps find several dead with others ill, none of them having had any care. Everything possible was done by the authorities to relieve the situation. Vaccines were prepared and administered to the extent of the supply that could be manufactured. Depots or aid stations were established throughout the municipal area both at Cape Town and at Johannesburg, where the situation was about the same as at the former place. These were the headquarters for the efforts at controlling the situation in the different sections. The proportion of serious cases was large, and at Johannesburg the mortality was about 30 per cent. At one time forty-two of the nurses at the Johannesburg Hospital were ill, as also a number of the members of the staff of physicians. Dr. R. P. MacKenzie, superintendent of the hospital, speaking of the disease, said: "The majority of medical men in Johannesburg have seen nothing so terrible as the present epidemic. In 1890 Edinburgh was seized with an epidemic of Russian influenza, but it was a mere fleabite compared to what Johannesberg is going through today. We are not yet attacked with pneumonic plague, but I admit that clinically the symptoms of many victims are exactly the same as those of pneumonic plague; but we have not got the plague. Our slum areas and the poor condition of the unfortunates living in them have combined to give the disease such impetus as to assume plague proportions. Other cities and towns in South Africa also reported great prevalence of the disease."

MEXICO LETTER

MEXICO CITY, Dec. 29, 1918.

Interchange of Professors

With the object of drawing closer the relations of a scientific character between both countries, the Department of Education of the Committee of Public Information of the City of New York has applied to the Mexican embassy at Washington suggesting the advantages of organizing a series of lectures on educational topics by United States professors coming to Mexico for the purpose, and by Mexican professors going to the United States, so that by this means the culture of the two republics would be diffused abroad to that extent. The proposition of the New York committee has been officially transmitted to the rector of the National University here, and it is hoped that he will regard the idea with favor and aid in its realization.

The Epidemic of Influenza

Information has been received to the effect that the epidemic of influenza is causing grave ravages in the states of Sonora and Sinaloa on the Pacific coast. The port of Mazatlan has been scourged worst by the disease. In the state of Chiapas the epidemic has subsided after having caused, it is estimated, 12,000 deaths.

The National Public Health Service

The Departamento de Salubridad has made arrangements to publish a supplement to its official *Boletin* which will appear more frequently than the latter, and will be devoted mainly to reporting the progress realized in the field of chemistry applied in pharmacology and pharmacy in Mexico. This branch of applied chemistry has developed considerably of late owing to the scarcity of drugs previously imported but shut off by the great war.

This same government service is now considering a drastic decree for combating alcoholism, which would materially restrict the manufacture and sale of intoxicating drinks.

Personal

Dr. C. Barajas, director of the Allied review, "Verdun," is seriously ill at present.

Dr. A. G. Figueroa has been appointed director of the National Library, the first establishment of the kind in the Republic.

Spanish Edition of the Journal

So far as I have been able to learn, the news of the early publication of a Spanish edition of THE JOURNAL has caused

an altogether favorable impression among the physicians of Mexico. Numbers of persons have already subscribed for it. THE JOURNAL is much appreciated and read in Mexico, but as unfortunately the number of physicians who can read English is not very large, its circulation has been relatively small. This drawback will be obviated with its publication in Spanish, and it will contribute to mutual advantage toward extending and making more cordial the scientific relations between the physicians of the two neighboring countries.

School for Backward Children

The national school authorities having jurisdiction over the federal district and territories, have added this year to their budget—which is still awaiting the approval of the Chamber of Deputies—an additional 5,000,000 pesos. This is to cover the expense of truant officers, to ensure that all children of school age are attending some institution of learning, and also to found a school for backward and feeble-minded children. There has been no provision for a school for these abnormal children before, and the lack of it has been much felt. The only special schools hitherto organized have been those for the blind, the deaf mutes and the children with ringworm.

Quackery in Mexico

With grave injury to the interests of the public, quackery in the city here is flourishing more and more every day as there is no legal restriction whatever to prevent any one that wishes to practice medicine from doing so. The quacks get clients among the ignorant by means of attractive and misleading advertisements in the daily papers. The favorite special fields chosen by these charlatans are syphilology and electrotherapy.

Medical Society

The Sociedad Medica del Hospital General has been recently reorganized. It comprises the medical force of this hospital but for some time the society had lapsed. Dr. Sepúlveda, director of the Beneficencia Publica, has taken the initiative in the resuscitation of the society.

Measures to Prevent Conception

The National Public Health Service, the Departamento de Salubridad, has published a decree prohibiting the sale and advertising of measures designed to prevent conception. The order is based on the grounds that this business is immoral and contrary to the interests of the public. The order is important because hitherto no check has been imposed on the speculators who make a business of manufacturing these so-called specifics, with which they defraud many foolish persons.

The Junta de Beneficencia Privada

This association was founded recently to cope with the epidemic of influenza and, since that need has passed, has continued its work in improving conditions as to hygiene in this city. It proposes to use the remainder of the sum realized by donations from private individuals (the sum to date totals 62,000 pesos), in founding public kitchens for the needy and securing shelter for the poor. The association has recently imported from the United States a quantity of drugs and has been dispensing them at cost price. They were obtained, thanks to facilities afforded by his Excellency, the United States ambassador, Mr. H. P. Fletcher. The president of this charitable Junta is Mr. C. B. Zetina, a progressive manufacturer, who at one time was president of the city council.

Examinations

The partial examinations in the medical school have just been completed, and the students in general made a good showing.

LONDON LETTER

LONDON, Dec. 18, 1918.

The Influenza Epidemic

It has been estimated that in the whole world about 6,000,000 persons have died from influenza during the past twelve weeks. Not since the Black Death has such a plague swept over the world. In India some 3,000,000 deaths have occurred, of which there were 15,000 in Bombay. Delhi, with a population of only 200,000, had 800 deaths a day. In the Punjab, 250,000 persons perished. South Africa also suffered severely. In Cape Town, 2,000 children were left destitute as a result of the disease. Australia sent a ship to Samoa because the disease was affecting 80 per cent. of the natives. The white population could only feed the living and bury the dead. The epidemic seems to have begun in Spain last summer in a mild form with comparatively few deaths, and in that form spread across Europe, reaching London about June. It then spread to America; and while serious accounts were received from there, it had practically disappeared from London in August and September. In October, the second wave appeared with its high mortality from pneumonia, and it reached a climax in November. It slowly declined, and a few cases are still occurring in London.

The Prohibition of Gas Warfare

The presidents of the Royal Colleges of Physicians and Surgeons of England, Scotland and Ireland, Sir Clifford Allbutt, and Sir William Osler have published in the *Times* a joint letter suggesting that the use of poisonous gases in warfare be abolished at the forthcoming peace conference. They point out that their introduction by the Germans was a violation of the principles of morality which had hitherto exercised some control over civilized warfare, as well as a violation of the Hague Convention, to which Germany was a signatory. The Allies had in self defense to retaliate, but now that the need is over, fresh safeguards should be devised to prevent any nation from employing such methods again. They consider gas as condemned for the following reasons: It is an uncontrollable weapon, whose effects cannot be limited to combatants. It is an "unclean" weapon, condemning its victims to death by long-drawn-out torture. It opens the door to infinite possibilities of causing suffering and death, for its further development may well lead to the devising of an agent that will blot out towns, and even nations.

The Medical Examination of Aviators

In the medical examination of aviators it has been found that in some cases men of perfect physique, apparently quite unafflicted with nerves, absolutely failed to make even passable pilots. The discovery led to the formation of a special "medical flight" where such pilots have been able to work under medical supervision, the causes of their failure ascertained, and, wherever possible, remedied by special treatment. During the rough and tumble of 1914, the selection of successful pilots was necessarily a good deal a question of the survival of the fittest. After this stage a careful medical and physical investigation was made of the survivors of that gallant band of pilots who went out with the first five squadrons in 1914. This gave the preliminary data as to the necessary physical qualifications of a successful pilot, which now form the basis of the standard required by the present medical board for all aviation candidates. Later on, and as soon as the exigencies of war permitted, an investigation on similar lines was made as to the characteristic mentality of these pilots, and with the information thus collected the medical flight began its important work. One of the first qualifications required by a good pilot is alertness; this is tested by measuring the reaction time to an electric lamp suddenly switched on. The emotional element is also tested so as to ascertain whether fear has a stimulating or paralyzing effect.

The Profession after the War

In his address to the General Medical Council, the president, Sir Donald MacAlister, referred with pride to the great part performed by the profession at home and abroad in preserving the health of the forces and the people during the struggle. The strain on physicians in civil practice, already severe enough, has been increased by the prevalence of epidemic illness. There is good hope that this strain will speedily be relieved by the release of physicians from military service at the rate of some hundreds every month. The professional committees in Great Britain which, with the guidance of members of the council, have so effectively aided the government in recruiting for the medical services during the war, are cooperating with the authorities in solving the scarcely less difficult problems of demobilization and resettlement. In particular, it has been arranged that the release of teachers in medical schools and hospitals shall have special consideration. The influx of students returned from active service, with a view to the early completion of their professional course, makes it urgent that the sadly depleted staffs of skilled instructors should be reinforced without delay. The number of newly qualified physicians would this year be below the average, notwithstanding the steps taken to recall senior students from the Army to the medical schools. Somewhat tardy measures had been adopted

to maintain the supply of senior dental students; but so far the qualified dentists added to the Dentists' Register had been few. The number attending the schools of dentistry with a view to qualification was also very small. The prospect of a considerable addition to the ranks of qualified dentists, plainly required to meet immediate wants, was not encouraging.

The Culminating Brutality

In all the black history of the German method of warfare, nothing has been viler than the reported treatment of sick prisoners. What it is to be hoped is the last example has come to light at Namur on the entry of the Allies. The diet of the sick prisoners there was 4 ounces of black bread a day with coffee in the morning and rice soup at noon, and a teaspoonful of jam every forty-eight hours. Every prisoner was emaciated and suffering from intestinal troubles brought on by the diet. When the Germans had to leave, they made no attempt to hand over the prisoners in hospital to any authority or representative of the Allies; they did not even inform the patients or the civilians that they were going. They merely went away and left the patients alone. There were about a dozen places used as hospitals, the existence of some being unknown to the civilians. These contained about 600 patients. Civilians penetrated into some the first day. At others patients remained absolutely unvisited for forty-eight hours, when, driven by hunger, some who could walk went out into the streets to seek food, and then only did the citizens hear of the situation. When they entered, they found an almost incredible state of affairs. In one institution, six patients lay dead in their beds. The condition of filth and the evidences of neglect were loathsome, the places being littered with dirty bandages and refuse of all sorts, so that the atmosphere was simply terrible. It was five days after the Germans had left the hospitals that the first British medical officers arrived, and ten days before there was anything like a proper supply of invalids' food and medical necessaries. Meanwhile, residents of the town did everything possible.

PARIS LETTER

PARIS, Dec. 5, 1918.

Nervous Complications in Present Epidemic of Influenza

At a recent meeting of the Société de neurologie, Dr. G. Roussy called attention to the infrequency of complications of the central and peripheral nervous system during the present epidemic of influenza, even in those sections where the disease was of considerable severity and where, since the beginning of the summer, cases of this kind were sought with care. Only four such cases have been encountered: (1) A case of polyneuritis, of the motor type with paraplegia predominating, involving all four extremities, appearing on the fifth day of the disease. (2) A case of polyneuritis involving all four extremities, appearing during convalescence from influenza of the bronchopneumonic type. (3) A case of neuritis of the incomplete sensory-motor type involving the legs only, occurring during convalescence from a mild attack of influenza. (4) A case of apoplexy with left-sided hemiplegia occurring during the course of pulmonary influenza; at the present time, six months after its onset, the hemiplegia is gradually subsiding.

The findings obtained from lumbar puncture in these four cases are worthy of note. In each case there was hyperalbuminosis and a clear lymphocytosis; sometimes as many as 80 or 100 lymphocytes per field were seen, showing that the meninges were involved in the infectious process. Dr. Roussy stated that either he was particularly fortunate in not having a larger number of nervous system complications among his cases, or the nervous system was not specially exposed to involvement in this epidemic of influenza. Dr. Souques confirmed Dr. Roussy's observations as to the infrequency of this complication in the present epidemic. Among 400 cases observed by him there was not one case of this complication.

Dr. E. de Massary stated that a meningeal reaction consisting of a slight lymphocytosis occurs frequently in influenza even when there is no involvement of the nervous system.

Interallied Conference of Scientific Academies

The Conférence interalliée des Académies des sciences des pays de l'Entente has concluded its work. It was resolved to appoint an executive committee of five members whose function it shall be to study in detail the various questions discussed by the delegates to the conference. The committee consists of M. Emile Picard, permanent secretary of the Académie des Sciences of France, president; M. Schuster, secretary of the Royal Society of London, secretary; M. Hale, member of the Academy of Science of Washington; M. Lecointe, member of the Académie royale des Sciences of Belgium, and M. Vito Volterra, member of the Italian Académie royale des Lincei. It has been decided to establish several international scientific associations. Scientists of Germany, Austria-Hungary, Turkey and Bulgaria will be denied membership in them.

Demobilization of Medical Officers

Inasmuch as the university centers are endeavoring to resume their activity, all assistant professors and hospital physicians now in service will be returned to their faculties. Beginning January first, the medical officers will be recalled from the front according to the time spent with units in active service. On the other hand, physicians of all classes up to the class of 1894 (44 years of age) inclusive, (class of mobilization, and class fixed by the number of dependent children), will be returned to civil life and will continue to draw pay, thus enabling them to build up a practice. The physicians of the invaded regions will be returned to their place of residence at once, and means are now being devised to supply them with such instruments as they may require as part of their war indemnity.

Permanent American Red Cross Committee in Paris

The work undertaken by the American Red Cross in France is too important to be allowed to cease with the end of the war. Therefore, a permanent bureau will be established in Paris which will be under the direction of the parent organization in New York. It is the first branch established in continental Europe. The Paris bureau has full control of the work of the departments of the Seine and Seine-et-Oise. Major Gurney E. Newlin, who was president of the Los Angeles branch, is president and director of the Paris committee.

Clemenceau Sanatorium

Acting on the suggestion of M. Mesureur, directeur de l'Assistance publique, the conseil de surveillance for that department has decided to give to the tuberculosis sanatorium at Bicêtre, containing 400 beds, the name of Sanatorium Clemenceau in honor of the premier who was provisional intern in the hospice de Bicêtre in 1863.

Emergency Transportation for Physicians

In order to ensure immediate medical attendance for the sick during the prevailing epidemic of influenza, the Paris municipal council appropriated 50,000 francs to defray the expense of transportation of physicians by means of autotaxis for a period of two months. These twenty-six taxis will be available for service each night from 8 p. m. to 4 a. m.

Personal

The Association générale des médecins de France has elected the premier, M. Clemenceau, honorary president of the association. Such action has never before been taken by the association.

M. Clemenceau was also unanimously elected a member of the Académie de médecine, section des associés libres. M. Clemenceau presented his doctorate thesis on a histologic subject in 1865. He practiced medicine for several years, at Rochester, New York, and in Paris. [His medical career was outlined in THE JOURNAL, Dec. 8, 1917, p. 1976.]

Dr. Sieur, médecin inspecteur général de l'armée, was elected to membership in the Académie de médecine in the section on surgical pathology.

Marriages

CLAYTON GREGG WOODHULL, Capt., M. C., U. S. Army, Decker, Mich., on duty at camp hospital, Air Service Depot, Morrison, Va., to Miss Winifred Susan Flaherty, C. N., U. S. Army, N. C., at Newport News, Va., December 21.

JESSE HUGHES MAYBRY, Lieut., M. C., U. S. Army, Newport News, Va., to Miss Eleanor T. Cook of Blackstone, Va., December 21.

LEWIS PADDOCK ADDOMS to Miss Martha Wentworth Suffren, both of Flatbush, Brooklyn, December 26.

JACOB WHITE to DR. FRANCES FLORENCE COHEN, both of New York City, December 24.

Deaths

George W. McCafferty, Jr. ✠ St. Michael, Pa.; University of Pennsylvania, Philadelphia, 1893; aged 48; appointed second assistant physician at the Norristown State Hospital in 1894, first assistant physician in 1897 and chief physician to 1910; in 1909 he was made assistant physician in Kirkbrides, the Pennsylvania Hospital for the Insane, Philadelphia, and in charge of the department of women, where he remained until 1912, when he was appointed assistant physician for the State Hospital for the Criminal Insane, Far View, Wayne County, leaving this position to take up the duties of superintendent of the Somerset Hospital for the Insane, Somerset, in 1916; formerly secretary, treasurer and reporter of the Wayne County Medical Society; died, December 13, at the Windber Hospital, Windber, Pa., after an operation for appendicitis.

Donald Herbert Currie ✠ **Surgeon, U. S. P. H. S.,** Boston; Washington University, St. Louis, 1897; aged 42; a member of the Association of Military Surgeons of the United States; who entered the service as assistant surgeon in 1899 was made passed assistant surgeon in 1904, and surgeon in 1912; from 1909 to 1917 on duty in the Hawaiian Islands, where his research work regarding leprosy in the government leper station on the island of Molokai, attracted the attention of medical men throughout the world; representative of the United States at the International Leprosy Congress in Bergen, Norway, in 1909; since 1917 port physician at Boston; died at his home in Brookline, Mass., December 23, from pneumonia following influenza.

George H. Hockett ✠ **Capt., M. C., U. S. Army,** Anderson, Ind.; College of Medicine and Surgery (Physiomedico), Chicago, 1910; aged 35; who entered the First Medical Officers' Training Camp at Fort Oglethorpe, Ga., and went overseas in May, 1918, and was placed in charge of the Three Hundred and Thirty-Fourth Sanitary Train, Fourth Division, and participated in the fighting at Chateau Thierry, Soissons, Cambrai, and Argonne Forest, and was proceeding toward Germany with the American Army of Occupation; died, December 1, from heart disease.

Edward Linthicum, Evansville, Ind.; Long Island College Hospital, Brooklyn, 1865; aged 74; at one time a member of the Indiana State Medical Association; formerly professor of clinical surgery in Evansville Medical Colleges; surgeon to the Evansville City Hospital; visiting surgeon and once president of the medical staff of the Deaconess Home and Hospital, and consulting surgeon to St. Mary's Hospital; who served as a medical officer in the war between Serbia and Bulgaria in 1885-1886; died in the Deaconess Hospital, Evansville, December 27, from cerebral hemorrhage.

William Emmet Purviance ✠ **Lieut.-Col., M. C., U. S. Army (retired),** Los Angeles; Jefferson Medical College, 1889; aged 53; a member of the Association of Military Surgeons of the United States; who entered the Medical Corps of the Army in 1892, and was retired on account of disability in line of duty, Aug. 6, 1912, was returned to the active list at his own request in 1917, and placed on recruiting duty in Los Angeles; is reported to have committed suicide at his home in Los Angeles.

Henry Skillmore Atkins, St. Louis; Beaumont Hospital Medical College, St. Louis, 1887; aged 51; a member of the Missouri State Medical Association; formerly first assistant physician at the Kentucky Insane Asylum, chief assistant at St. John's Hospital, St. Louis, and for eight years superintendent of the St. Louis Asylum for the Insane; founder of the Glenwood Sanitarium, Glendale, Mo.; died in St. Luke's Hospital, St. Louis, December 25.

James M. Scott, St. Louis; Washington University, St. Louis, 1853; aged 89; a member of the Missouri State Medical Association, and for eight years president of the St. Louis Medical Society; formerly a member of the faculty of his alma mater; and also a professor in the St. Louis College of Physicians and Surgeons; for two terms a member of the city board of health; died at his home, December 22, from pneumonia.

John Van Doren Bedinger ✠ **Capt., M. C., U. S. Army,** Anchorage, Ky.; Johns Hopkins University, Baltimore, 1911; aged 32; associate professor of pediatrics in the University of Louisville from 1913 to 1917; who entered the Army in June, 1917, and served at Fort Oglethorpe, Ga., and Camp Shelby, Hattiesburg, Miss., before going abroad; died in Liverpool, England, October 20, from pneumonia.

Samuel F. Brothers ✠ Brooklyn; College of Physicians and Surgeons in the City of New York, 1890; aged 54; editor of the *Medico-Pharmaceutical Journal* from 1898 to 1905; also a graduate in pharmacy; founder of *American Medicine;* gynecologist to Zion Hospital and Dispensary, Metropolitan Hospital and Dispensary and Beth Israel Dispensary; died at his home, December 18, from anemia.

Reuben A. Adams, Rochester, N. Y.; Homeopathic Medical College of Pennsylvania, Philadelphia, 1868; aged 77; a veteran of the Civil War; president of the American Institute of Homeopathy in 1916; twice medical director of the Department of New York G. A. R., and in 1915 elected surgeon-general of the G. A. R.; city physician of Rochester in 1874; died at his home, December 9.

Alvin Myers Strusse, Guatemala City, Guatemala, Central America; Jefferson Medical College, 1914; aged 28; who had been doing research work in Guatemala for the Rockefeller Institute, and was president of the local institution in Guatemala City and chief of the supreme council of salubrity; died in the Quirigua Hospital, December 18, from pneumonia following influenza.

William Adam Lieser ✠ **Lieut., M. C., U. S. Army,** Celina, Ohio; formerly of Fort Recovery, Ohio; Eclectic Medical Institute, Cincinnati, 1914; aged 34; a specialist on diseases of the eye, ear, nose and throat; who was among the first to enter the service after war was declared; is reported to have died, recently, in France, from wounds received in action.

Benjamin Isaac Coman Buckland, Fleming, N. Y.; University of Michigan, Ann Arbor, 1884; aged 61; a member of the Medical Society of the State of New York, and twice president of the Cayuga County Medical Society; formerly health officer of Cayuga County; died at the home of his brother-in-law in Fleming, December 24.

Carl C. Elmer Boyer, Chicago; Loyola University, Chicago, 1916; aged 32; a member of the staff of the Columbus Hospital; physical director for the north and south parks in Chicago for six years, and in Oil City, Pa., for two years; died at the Columbus Hospital, December 5, from pneumonia following influenza.

Emile L. DeLanney ✠ **Major, M. C., U. S. Army,** Omaha; John A. Creighton Medical College, Omaha, 1901; aged 46; assistant professor of the practice of medicine in his alma mater; chief of the medical service at Fort Des Moines, Iowa; died in the post hospital, Fort Des Moines, December 23, from influenza.

William T. Johnson ✠ Pawnee City, Okla.; Eclectic Medical Institute, Cincinnati, 1885; aged 58; president of the state department of health; formerly professor of diseases of the chest in Lincoln (Neb.) Medical College; was found dead from heart disease in his automobile near Pawnee City, December 18.

John S. Berry, Fort Worth, Texas; University of Louisville, Ky., 1882; aged 60; formerly of Waxahachie, Texas; at one time a member of the State Medical Association of Texas; who was struck by an automobile near his home, December 19, died a few minutes later in St. Joseph's Infirmary.

Wilford Andrew Fair ✠ **Lieut., M. C., U. S. Army,** Pleasant Hill, Mo.; University Medical College of Kansas City, Mo., 1909; aged 35; was killed in France, October 6, during the fight in the Argonne Forest, while attempting to aid a brother officer, who had been wounded and was exposed to machine gun fire.

Clarence Alden Macomber ✠ **Lieut., M. C., U. S. Army,** New Sharon, Me.; Tufts College Medical School, Boston, 1915; aged 42; on duty at the base hospital, Aviation Field No. 4, Garden City, L. I., was killed in a collision between a runaway team and the ambulance in which he was riding, December 20.

Ralph Thomas Saunders ✠ **Lieut., M. C., U. S. Army,** Sandusky, Ohio; Ohio State University, Columbus, 1917; aged 25; formerly assistant surgeon at the Ohio State Soldiers' and Sailors' Home, Sandusky; died in Camp Eustis, Va., October 11, from bronchial pneumonia following influenza.

Harrison Briggs Webster ✠ **Major, M. C., U. S. Army,** Castine, Me.; Harvard Medical School, 1909; aged 34; who entered the service in 1917, and was on duty with Ambulance Company No. 14, at Fort Benjamin Harrison, Ind., and later went overseas; was killed in action in France, October 12.

Claud Huston Case ✠ Kansas City, Kan.; University of Kansas, Lawrence and Rosedale, 1907; aged 44; a specialist

in diseases of the eye, ear, nose and throat; a member of the staff of Bethany Hospital, Kansas City, Kan.; died in that institution, October 22, from pneumonia following influenza.

Edward E. Evans, Mercer, Mo.; Missouri Medical College, St. Louis, 1898; aged 50; a member of the Missouri State Medical Association; formerly assistant superintendent of State Hospital No. 1, Fulton; died in Memorial Hospital, Rosedale, Kan., December 12, from pernicious anemia.

Henry Samuel Tanner, San Diego, Calif.; Eclectic Medical Institute, Cincinnati, 1859; aged 87; who first came into notice in the late seventies as an advocate of fasting for the relief of disease conditions of various kinds; died in the San Diego County Hospital, San Diego, December 28.

David D. Bowen, Adams, Mass.; Berkshire Medical College, Pittsfield, Mass., 1861; aged 80; who after his graduation entered the woolen business, and later was in the coal and wood business at Maple Grove; died at the home of his daughter in Adams, December 5, from acute gastritis.

Julian Chew Blakistone, Washington, D. C.; Georgetown University, Washington, D. C., 1906; aged 37; a member of the Medical Society of the District of Columbia; a specialist in urology, and professor of dermatology in his alma mater; died at his home, December 13, from osteosarcoma.

William Cleveland Reese ✠ **Lieut., M. C., U. S. Army,** Wilkes-Barre, Pa.; University of Pennsylvania, Philadelphia, 1910; aged 34; a member of the staff of the Wilkes-Barre City Hospital; died in New York City, October 20, from pneumonia following influenza.

Paul Lee Cocke ✠ **Capt., M. C., U. S. Army,** Birmingham, Ala.; University of Virginia, Charlottesville, 1899; aged 43; on duty with the American Expeditionary Forces in France; died in Paris, July 27, from concussion of the brain following an automobile accident.

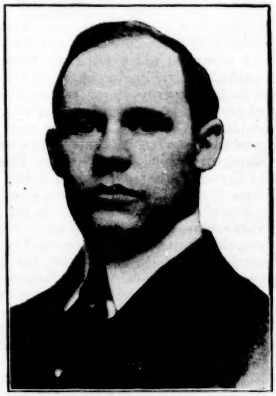
A. Eugene Heimbach, Renovo, Pa.; Hahnemann Medical College, Philadelphia, 1890; aged 55; who underwent operation in the Womans' Homeopathic Hospital, Philadelphia, December 6; died in that institution, December 16, from carcinoma of the stomach.

Harry Everett Gribbin ✠ Rockland, Me.; Bowdoin Medical College, Brunswick and Portland, Me., 1900; aged 43; a Fellow of the American Academy of Medicine, and a specialist in diseases of the eye, ear, nose and throat; died, recently, from pneumonia.

Max Meyer, New York City; Eclectic Medical College of the City of New York, 1897; aged 64; a practitioner since 1876; professor of chemistry and toxicology and lecturer on

Died in the Service
IN FRANCE
MAJOR HARRISON B. WEBSTER, M. C., U. S. ARMY, 1884-1918

Died in the Service
IN FRANCE
CAPT. WILLIAM F. GUILFOYLE, M. C., U. S. ARMY, 1882-1918
(*See The Journal, Dec. 21, p. 2092*)



Died in the Service
IN FRANCE
LIEUT. DAVIS KING SUMMERS, M. C., U. S. ARMY, 1888-1919
(*See The Journal, last week, p. 59*)

Horace Robert Burns ✠ Denver; Gross Medical College, Denver, 1896; aged 49; a member of the American Academy of Ophthalmology and Oto-Laryngology; a specialist on diseases of the eye, ear, nose and throat; died at his home, October 18, from pneumonia following influenza.

George Buol ✠ **Lieut., M. C., U. S. Army,** Ravenna, Neb.; University of Nebraska, Omaha, 1910; aged 32; who had been on duty at Camp Funston, Kan., was instantly killed, December 21, when his automobile was struck by a Burlington train at a grade crossing at Streetwater, Neb.

Benjamin Franklin Grove, Baltimore; University of Maryland, Baltimore, 1877; aged 66; at one time a member of the Medical and Chirurgical Faculty of Maryland; a specialist on diseases of the ear and throat; died at his home, December 26, from the effects of a fall in October.

Joseph R. Bluxome, San Francisco; New York University, New York City, 1857; aged 87; attending physician to the DeMilt Dispensary, New York City, in 1865 and 1866, and visiting physician to St. Luke's Hospital, San Francisco, in 1871; died at his home, December 27.

William F. Thomason, Waco, Texas; Medical College of Georgia, Augusta, 1859; aged 79; a Confederate veteran, who served as assistant surgeon in Herrie's Hospital, Atlanta, Ga., during the Civil War, and was afterward a druggist; died at his home, December 21.

histology and pathology in his alma mater; died at his home, December 23.

William Townsend Van Vredenburgh, New Brighton, Staten Island, N. Y.; College of Physicians and Surgeons in the City of New York, 1881; aged 62; died in the Home for Incurables, New York City, December 22, from cerebral hemorrhage.

John P. Hussey, Providence, R. I.; Georgetown University, Washington, D. C., 1903; at one time a member of the Rhode Island Medical Society; died at his home, about December 18.

Edward Embree ✠ Winterset, Iowa; State University of Iowa, Iowa City, 1889; aged 54; died at his home, November 13, from chronic interstitial nephritis.

William T. Rolston, Cape Girardeau, Mo.; Hahnemann Medical College, 1876; aged 64; died at his home, December 13, from chronic interstitial nephritis.

Herve Gagne, Montreal, Que.; Laval University, Montreal, 1918; aged 30; died in October from pneumonia following influenza.

Thomas Levington Bayne Vaught, Campeche, Mexico; a nongraduate practitioner; aged 36; died, October 2, from pellagra.

Eugene L. Reed ✠ Atlantic City, N. J.; Jefferson Medical College, 1884; aged 59; died in a sanatorium, December 16.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

THE QUALITY OF THE MARKET SUPPLY OF PROCAINE

Report of the Council on Pharmacy and Chemistry

The following report has been authorized for publication by the Council. W. A. PUCKNER, Secretary.

In accordance with its announcement (THE JOURNAL, Sept. 22, 1917, p. 1018) to report from time to time on the quality of American-made synthetic drugs, an examination of the market supply of procaine has been made. As explained at the time, the control of synthetic drugs, which, as a result of the war, are now made in this country, is in the furtherance of American industry, for the protection of the public, and in the interest of physicians. Since the manufacture of this class of drugs is to some extent experimental in this country, it is due physicians and the public that they be given the protection which will come from an investigation of the market supply. In view of the occasional reports of accidents with local anesthetics, an examination of the market supply of procaine was deemed particularly desirable. Hence, the A. M. A. Chemical Laboratory was asked to report if the product now offered for sale was satisfactory from a chemical standpoint while the aid of the Pharmacologic Laboratory of Cornell University Medical School was invoked to determine if any of the product was unduly toxic.

Procaine, which chemically is the mono-hydrochloride of Para-amino-benzoyldiethyl-amino-ethanol, is the non-proprietary name selected by the Federal Trade Commission as the official designation for the drug previously known under the proprietary name "novocaine." Before the war procaine was obtainable in this country only through the Farbwerke Hoechst Co., the American representative of the German establishment, Farbwerke, vorm, Meister, Lucius and Bruening, under the name "novocaine." This monopoly on "novocaine" was exercised by virtue of United States patent No. 812,554, which was issued to Alfred Einhorn, Munich, Germany, assignor to Farbwerke, vorm, Meister, Lucius and Bruening, Hoechst a. M., in 1906. With the outbreak of hostilities, Congress passed the Trading with the Enemy Act, and under this, the Federal Trade Commission took charge of the novocaine patent with a view of securing the production of this product in the United States. To ensure an adequate supply of the drug, the Federal Trade Commission on recommendation of the Committee on Synthetic Drugs of the National Research Council, in addition to issuing a license to the Farbwerke Hoechst Company (which license was later transferred to the H. A. Metz Laboratories) granted authority to the Abbott Laboratories and the Rector Chemical Company to manufacture it under the U. S. patent after specimens submitted by these firms had been found satisfactory in the Association's Laboratory and at the Cornell Pharmacologic Laboratory.

After the three licenses had been issued, the Council examined specimens which each of these firms submitted as representing the market supply. These were found satisfactory and the preparations being marketed in conformity with its rules, the Council admitted procaine-Abbott, procaine-Farbwerke (novocaine), and procaine-Rector to New and Nonofficial Remedies as brands of procaine.

To obtain specimens representing the market supply, orders for the three brands of procaine were recently placed with pharmaceutical firms in New York, Baltimore and San Francisco. The Baltimore and San Francisco firms supplied specimens of procaine-novocaine brand and procaine-Rector brand but reported that the Abbott brand was not procurable. The New York correspondent was able to supply procaine-Rector only. As the entire output of the Abbott Laboratories was stated to go to the Government, specimens of this product were obtained through the Surgeon-General of the Army from the General Purchasing Office, Medical Dept., U. S. Army. The following specimens were obtained and examined:

1. Procaine-Abbott, 6 specimens: The first specimen bore no serial number but the five later specimens were designated respectively, No. 89999, No. 89998, No. 89997, No. 89996, and No. 810995 representing batches from which shipments are to be made on contracts placed by the General Purchasing Office, Medical Department, U. S. Army, with the Abbott Laboratories of Chicago.

2. Procaine-novocaine brand, 4 specimens: These were designated respectively, A56, A57, A63, and A67. The first two specimens were labeled "Manufactured by the Farbwerke-Hoechst Co. at the H. A. Metz Laboratories." The third specimen (not in original container) was labeled "H. A. Metz Laboratories" and the fourth was marked "Manufactured by the H. A. Metz Laboratories."

3. Procaine-Rector, 3 specimens: Each bore the statement "Manufactured by the Rector Chemical Company" but had no "lot number."

REPORT OF THE A. M. A. CHEMICAL LABORATORY

To determine the quality of procaine now offered to the medical profession, the several specimens of each brand which had been purchased were submitted to the tests employed when specimens were previously examined for the Subcommittee on Synthetic Drugs of the National Research Council, and for the Council on Pharmacy and Chemistry. These tests were essentially those of New and Nonofficial Remedies and of the German Pharmacopoeia; it is, of course, not in the U. S. Pharmacopoeia. They require that the specimens shall respond to tests of identity for procaine (para-amino-benzoyldiethyl-amino-ethanol-hydrochloride); shall be odorless and colorless crystals or crystalline powder; shall melt at 153 to 155 C.;[1] shall be free from metallic impurities, and readily carbonizable matter, and on incineration leave not more than 0.1 per cent. ash.

In the accompanying table the results of the examination are given. For comparison the findings for the specimens examined previously are included.

From this examination it appears that all the specimens of procaine received complied satisfactorily with all tests of identity and purity with the following exceptions: (1) One specimen of procaine-Abbott had a melting point slightly below the permitted range; however, the last five specimens had the required melting point. (2) Five specimens of procaine-Abbott and the last three specimens of procaine-Rector were not entirely colorless, but had a yellow or light brown tinge.

REPORT FROM THE CORNELL PHARMACOLOGIC LABORATORY

The following is the report of the toxicity determinations carried out on the specimens of procaine above enumerated, in the Pharmacologic Laboratory of Cornell University, Medical School, by Dr. R. A. Hatcher with the assistance of Dr. C. Eggleston.

Because of the serious or even fatal accidents occasionally reported from the use of local anesthetics (THE JOURNAL, Jan. 26, 1918, p. 258), it was thought prudent to determine that specimens of procaine should not be unduly toxic under normal conditions. Such tests have been made for the Subcommittee on Synthetic Drugs when the issuance of licenses for the manufacture was under consideration and have been a prerequisite to the acceptance for New and Nonofficial Remedies.

Twenty-five milligrams of drug per kilogram weight of cat in 5 per cent. solution is injected intravenously, and after 15 minutes, the same amount is again given in the same way. The dose administered in the test corresponds to over 1.5 gm. of drug for an adult of average weight administered intravenously, by which route the toxicity of the

1. U. S. patent number 812,554—the novocain patent—declares that the salt melts at 156 C. Evidently based on this, both the German Pharmacopoeia and New and Nonofficial Remedies give this melting point. Two specimens of German made novocain obtained from our files, stated to be manufactured by Farbwerke-Hoechst vorm. Meister, Lucius, and Bruening, Hoechst a.M. were found to melt respectively between 154 and 155 C. and between 153.5 and 154.5 C. when the melting point was determined according to the directions of the U. S. Pharmacopoeia, 9th revision. The various specimens examined at that time melted between 153 and 155° C. and it was decided to permit this range.

drug is far greater (approximately ten times as great) than by the subcutaneous method ordinarily used in clinical practice.

When the several market specimens of procaine were tested in this way, the animals so tested succumbed in no case. These results indicate that none of the specimens is to be considered dangerous when used in ordinary dosage for normal individuals. (Since the accidents attending the use of procaine depend on abnormal conditions not understood at present, no responsibility for the safety of the drug can be assumed as a result of these experiments.)

Several specimens of procaine-Rector and five of procaine-Abbott are decidedly brownish in color even when finely powdered and yield yellowish solutions.[1] All the earlier specimens from the Abbott Laboratories and from the Rector Chemical Company were beautifully white and crystalline.

Brand	Date Received	Color	Melting Point	Ash
Procain (Abbott), from Committee on Synthetic Drugs....	12/21/17	White	154-155 C.	None
Procain (Abbott), submitted to Council P. and C.	1/29/18	White	153.5-154.5 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army.....	8/31/18	White	152.5-153.5 C.	None
Procain (A), bott), Gen. Pur. Off. U. S. Army, No. 89999.....	9/30/18	Slight brownish tint	153-154.5 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89998.....	9/30/18	Slight brownish tint	153-154.5 C.	0.005%
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89997.....	10/ 8/18	Slight brownish tint	153-154 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 89996.....	11/ 4/18	Slight brownish tint	153.5-154.5 C.	None
Procain (Abbott), Gen. Pur. Off. U. S. Army, No. 810995....	11/ 4/18	Slight brownish tint	153.5-154.5 C.	None
Procain (Farbwerke Hoechst Co.), submitted to Council....	10/24/17	White	153-154 C.	None
Procain (Farbwerke Hoechst Co.), submitted to Council....	12/10/17	White	153-154.5 C.	None
Procain (Farbwerke Hoechst Co.), submitted to Council, market spec. "A56".....	8/ 9/18	White	153.5-154.5 C.	None
Procain (Farbwerke Hoechst Co.), submitted to Council, market spec. "A57".....	9/ 9/18	White	153.5-154.5 C.	None
Procain (H. A. Metz Lab.), market spec. "A63".....	8/23/18	White	153-154 C.	None
Procain (H. A. Metz Lab.), market spec. "A67".....	9/23/18	White	153-154 C.	0.018%
Procain (Rector), from Com. on Synthetic Drugs.....	12/18/17	White	153-154.5 C.	None
Procain (Rector), market spec.	8/20/18	Slight brownish tint	153-155 C.	None
Procain (Rector), market spec.	8/23/18	Slight brownish tint	153-155 C.	None
Procain (Rector), market spec.	8/23/18	Slight brownish tint	153-154.5 C.	None

The following tests were also made: About 0.01 to 0.02 gm. procaine was added to about 10 to 15 c.c. distilled water contained in a test tube, and this placed in a bath of boiling water for one hour. The solutions were then cooled and examined. After standing over night, they were examined again. No deposit of any sort and no change of color could be detected in any case.

When the matter of the discolored specimens of procaine was referred to the Rector Chemical Company for explanation, the firm wrote that some months ago for a short time for some unexplainable reason its procaine was slightly yellowish in color, but that every batch was carefully tested and found to answer all chemical requirements. The firm stated that the product which it has sent out for some time past has been white and yields a colorless solution.

To a like inquiry the Abbott Laboratories replied that the five samples which were found discolored were products manufactured by the Rector Chemical Company and represented goods which it had purchased to assist in filling delayed orders, because the firm had found itself unable to keep pace with the demand on account of delay in securing needed apparatus. The firm submitted protocols to show that the procaine made by it, by Rector and by Metz were of equal toxicity.

So far as the evidence goes, there is nothing to indicate that the yellowish or brownish colored specimens of procaine are seriously impure. On the contrary, the compliance with the chemical and toxicologic tests indicates that the color is due to an insignificant trace of some colored substance produced in the manufacturing process. In view of this, the Council considers the use of the discolored product to be justified in the present emergency, although it would urge that for the future the supply of procaine should be free from color and also comply to the tests of purity. It makes this request in the interest of the medical and dental professions, which use the drug, and also in a desire that in the manufacture of synthetic drugs, the United States shall occupy a high place.

1. A specimen of procaine recently sent the Council by the Metz Laboratories had a faint tinge of yellow, but, like the discolored Rector and Abbott specimens, complied with the identity and purity tests for procaine.

Correspondence

"THE ROENTGENOLOGIC STUDY OF EMPYEMA CAVITIES"

To the Editor:—In his article on "The Roentgenologic Study of Empyema Cavities" (THE JOURNAL, December 14, p. 1975), Dr. Franklin A. Stevens advocates an oil emulsion of bismuth subnitrate for the outlining of empyema cavities, as a substitute for bismuth paste. His reason for employing the oil mixture in preference to the petrolatum as given is that the oil mixture will fill all the crevices of the cavity and prevent bismuth absorption. Wishing to verify his experience, I desired to determine whether the oil and bismuth and powdered acacia will make a stable homogeneous mixture. I therefore made up the mixture as described and left it in the test tube overnight. In the morning I found all the bismuth at the bottom of the test tube and the pure transparent oil on top. Again the test tube filled with a 10 per cent. bismuth paste shows it to remain homogeneous.

This, in my opinion, makes the mixture of oil and bismuth not only unsuitable for the purpose but also dangerous, because the pure bismuth might separate and gravitate into the deepest recess between the dome of the diaphragm and the pleura and make it difficult to remove and in time cause absorption, with its toxic effects. If the oil and bismuth mixture were injected into tortuous sinuses, at the end of which were abscess cavities, the bismuth would remain in the abscess cavities, while the oil would run out and cause very serious complications.

Bismuth poisoning is not eliminated by substituting oil for petrolatum; but we have demonstrated that the accidental occurrence of bismuth poisoning can be prevented by proper technic in employing the bismuth paste.

In order that the proper preparation of the bismuth paste may be better known, as it is used at the present time, I give herewith the formula for its preparation:

The materials required are:

1. Bismuth subnitrate, chemically pure.
2. Yellow petrolatum (best grade).
3. White wax.
4. A large porcelain mixing bowl.
5. A spoon.
6. A large enamel jar, with a cover, for storing the paste.
7. Several small enamel jars with covers for liquefying paste at the time of use.
8. Adhesive straps for the covers of the jars, to keep moisture and dirt from contaminating the paste.
9. Water bath for heating the paste.
10. Sterile rubber gloves, towels, etc., for aseptic technic.

Bismuth paste is a 10 per cent. mixture, one part of bismuth subnitrate to nine parts of petrolatum, with a small amount of white wax (2 ounces to 10 pounds of paste). The mixing bowls, jars and spoon are sterilized. The petrolatum is sterilized for twenty minutes in the original container in the autoclave. The bismuth subnitrate is sterile when it

comes from the manufacturer and so does not have to be resterilized. The mixing bowls and jars must be absolutely dry, as the slightest amount of water produces a curdling of the paste and it is then useless.

The bismuth subnitrate is poured into the mixing bowl and all lumps smoothed out with the spoon. A sufficient amount of petrolatum, which is still in a liquefied condition from the sterilizing, is slowly poured into the bismuth, to make a stiff paste. This mixture is then stirred for an hour until it is a smooth, bright, yellow, homogeneous paste. This is the most important step in the process, and if it is not carried out carefully, the paste will not be homogeneous.

To the balance of the nine parts of the liquefied petrolatum a small amount of white wax, which has been heated to liquefaction, is added (2 ounces to 10 pounds), and then this mixture is gradually added to the thick paste, being stirred constantly. The resulting product should be a light yellow, smooth, homogeneous paste, which, on cooling, becomes congealed without the precipitation of the bismuth.

From time to time, small amounts of this paste (from 8 to 10 ounces) are transferred to small jars in which the paste is liquefied and from which it is used. These jars should not be more than half full, and great care should be taken not to get any water into the paste while heating it.

The syringes that are used are both glass and metal, the barrel holding from one-half ounce to 2 ounces of paste. These syringes have different shaped points and nozzles, according to the demands of the case. The syringes are sterilized and kept in sterile towels until they are to be used, when they are filled with the liquefied paste.

EMIL G. BECK, M.D., Chicago.

"FOCAL INFECTIONS OF THE EYE FROM THE INTESTINAL TRACT"

To the Editor:—Apropos of Dr. J. G. Dwyer's article in THE JOURNAL, December 21, on "Focal Infections of the Eye from the Intestinal Tract," I recently had a case that illustrates the influence of gastro-intestinal toxemia in certain eye conditions:

A girl, aged 18 years, consulted me in the middle of April, 1918, because of typical serous iritis of the right eye for which she had been under treatment two weeks at a local clinic. There were by this time slight iritic synechiae and some corneal infiltration. Examination of the heart and lungs elicited nothing abnormal. The teeth were in good condition. The patient had slightly buried tonsils; there was no exudate either on the surface or in the crypts, nor was there a history of frequent attacks of tonsillitis. The nose as well as the neighboring sinus cavities were evidently normal, at least clinically so. There was no history of rheumatism or any joint affection. Menstruation was normal. In fact, outside of slight paleness due to the patient's rather sedentary occupation, that of a stenographer and bookkeeper, the girl had evidently enjoyed good health until the present attack. She was put at once on the routine antiiritic treatment (calomel for the bowels, atropin in oil locally, hot applications, acetylsalicylic acid internally, dark coquilles, bland diet, etc.) and told to report to a local hospital for a Wassermann test, which was negative. A von Pirquet test yielded the same result. Under this treatment the eye seemed to be getting along quite well, as the patient, luckily, was in a position to give up her work and followed religiously the instructions given her, when she reported, May 27, with the unmistakable signs of a beginning iritis in the other eye. On inquiry she admitted that on the previous day she had had a heavy meal of meat and tomatoes, and later in the day had partaken rather freely of strawberries. A goodly dose of calomel with sodium bicarbonate seemed to put her on the right track again, and though the attack of iritis in this eye could not be prevented, the condition was under our complete control until a month later, when another gastro-intestinal indiscretion caused a slight exacerbation in both eyes, and retarded the treatment to some extent. A little later there developed a mild degree of optic neuritis, with blurring of the outlines of the disk and slight swelling of the nerve head, without, however, in any way affecting the vision or the fields; by this time the deposits on the posterior surface of the cornea were almost completely absorbed. The recovery now continued uninterruptedly, and by the middle of August the patient was able to return to her work. A month later the outlines of the disk began to emerge, and the disk gradually took on its natural form and color. Potassium iodid was given during the last two months of treatment. I might observe that while under my care the patient had two marked attacks of urticaria.

The question in my mind is: Can a case of this kind really be called a focal infection, in the common acceptation of the term, or does it more properly belong to that class of disturbances, with the iris as the locus minoris resistentiae, caused by protein sensitization of ingested food? In either case the question opens up a wide vista of scientific investigation, on the results of which depends the solution of many puzzling pathologic phenomena.

ALEXANDER ROVINSKY, M.D., New York.

TREATMENT OF INSOMNIA

To the Editor:—I have read with interest Dr. Mautz' letter on insomnia in THE JOURNAL of December 14. In my own case (I am of a nervous temperament) business affairs have often produced a sleepless night. I have tried counting, deep breathing, etc., (and have avoided drugs) without success. I have also tried getting up and walking around for a while, only to resume my busy thoughts on returning to the pillow. Suddenly an inspiration: Get out of bed; become interested in some humerous story, such as one of Mark Twain's; get to laughing; go to bed with a good giggle on; Morpheus takes a grip on the throat of business, and there you are—asleep.

S. C. PRIEST, M.D., Newark, Ohio.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

COMMISSIONS IN THE RESERVE CORPS, INACTIVE

To the Editor:—A number of physicians who volunteered their services during the war received notices that they had been recommended for commissions, and that commissions and orders would be issued through the Adjutant-General's Office. In many cases the commissions and orders were not received and, of course, will not be received since the armistice has been signed. Most of these physicians had fully prepared themselves to report for duty at a greater or lesser sacrifice. They no doubt will be very grateful to have the government recognize their willingness to assist in the emergency. Would it be reasonable to expect the government to issue the delayed commissions, and immediately on acceptance, to muster out the recipients? This mark of appreciation would entail very little extra work, and no expense.

W. L. R.

ANSWER.—We are informed that the War Department will probably issue commissions in the Reserve Corps, inactive, to those medical men whose applications for appointment had received the final approval of the Surgeon-General on or before Nov. 11, 1918. There may, of course, be some delay in the issuing of these appointments. If nothing is heard from the War Department within five or six weeks, the physician might well write directly to the Adjutant-General's Office, detailing the circumstances and requesting the issuing of the commission.

LITHIUM CARBONATE—PHENOL CRYSTALS

To the Editor:—1. Is not lithine carbonate, as mentioned in Current Medical Literature, Nov. 9, 1913, p. 1620, Abstract 109, lithium carbonate? 2. What is glacial phenol described in Abstract 45, p. 1616?

F. M. P.

ANSWER.—1. The Spanish term used is "carbonato de litina" and in the French summary given with the article the chemical is designated "carbonate de lithine." Both of these terms are the equivalent of lithium carbonate, which should have been the English word used.

2. The French term "acide phénique neigeux" should have been translated "phenol crystals."

Book Notices

TRENCH FEVER. Report of Commission of the Medical Research Committee, American Red Cross. Members of Commission: Richard P. Strong, Major, M. R. C.; Homer F. Swift, Major, M. R. C.; Eugene L. Opie, Major, M. R. C.; Ward J. MacNeal, Captain, M. R. C.; Walter Baetjer, Captain, M. R. C.; A. M. Pappenheimer, Captain, M. R. C.; A. D. Peacock, Captain, R. A. M. C. (T) and David Rapport, First Lieutenant, M. C. Prepared for publication by Richard P. Strong. Cloth. Pp. 446, with illustrations. New York: Oxford University Press, 1918.

This commission consists of the following members of the Medical Corps. Majors Richard P. Strong, Homer F. Swift and Eugene L. Opie; Captains Ward J. MacNeal, Walter Baetjer, A. M. Pappenheimer and A. D. Peacock, and Lieut. David Rapport. A report of the investigations and conclusions has just been issued in a large volume. This will be of value to others pursuing investigations on the subject.

In carrying out the investigations, since the disease is not transmissible to animals, it was necessary to secure the assistance of volunteers, and eighty-two American soldiers, after having the conditions of the experiment fully explained to them, volunteered their services. The work was carried out at a stationary hospital of the British Expeditionary Forces, the laboratory apparatus and supplies with funds being furnished through the American Red Cross. The researches are extensive, including examination and inoculation of the volunteers and the study of numerous soldiers subject to the disease. The most important facts demonstrated by the investigations are that:

1. Trench fever is a specific, infectious disease; it is not a modified form of typhoid or paratyphoid fever, and is not related, from an etiologic standpoint, to these diseases.

2. The organism causing the disease is a resistant filtrable virus.

3. The virus causing trench fever is present particularly in the plasma of the blood of trench fever patients, and such plasma will produce the disease on inoculation into healthy individuals.

4. The disease is transmitted naturally by the louse *Pediculus humanus* Linn., var. *corporis*, and this is the important and common means of transmission. The louse may transmit the disease by its bite alone, the usual manner of infection, or the disease may be produced artificially by scarifying the skin and rubbing in a small amount of the infected louse excrement.

5. A man may be entirely free from lice at the time he develops trench fever, the louse that infected him having left him some time previously as its host, and the louse need only remain on the individual for a short period of time in order to infect him.

6. The virus of trench fever is also sometimes present in the urine of trench fever patients and occasionally in the sputum, and the disease may be produced in man by the introduction of the virus in the urine or sputum through the scarified or otherwise abraded skin.

7. Since the urine and sometimes the sputum of trench fever patients are infective, these should be sterilized in order to avoid the possibility of accidental infection from them.

8. In order to prevent trench fever or limit its spread, and thus save man power for the armies, greater efforts must be made to keep soldiers in general from infestation with lice.

Usually the complete study of any infectious disease, from its first description as a clinical entity to the discovery of its etiology, pathology and control, requires many years, sometimes many generations. Here in a single controlled research a disease has been thoroughly studied and the method of control discovered during three or four years.

The Enterprising Pharmaceutical House and Its "Remedies."—Let an enterprising pharmaceutical house bring forward a remedy for a certain disease and advertise it in a pseudoscientific way, and the profession will not fail to adopt and use it until another advertised remedy displaces it. It does not matter whether it be a revived old remedy, a new one, or an old one dressed in a new garb; whether it be a chemical or an animal extract, a heterogenous vaccine, the profession is always ready to welcome the new medicinal recruit and give it a place in its multitudinous armamentarium. Wherein lies the fault? It is due, partly, to our blind devotion to our old-time drugs, which should have been relegated to the attic years ago, and, partly, to our fickleness created by overenterprising pharmaceutical houses. —Ravitch and Steinberg, *Kentucky Medical Journal.*

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 14. Chairman, Dr. S. W. Welch, Montgomery.

DISTRICT OF COLUMBIA: Washington, Jan. 14-16. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

KANSAS: Topeka, Feb. 11. Sec., Dr. H. A. Dykes, Lebanon.

MISSOURI: St. Louis, Jan. 28-30. Sec., Dr. G. H. Jones, State House, Jefferson City.

NEW MEXICO: Sante Fe, Jan. 13. Sec., Dr. W. E. Kaser, East Las Vegas.

NEW YORK: Jan. 28-31. Albany, Buffalo, New York City and Syracuse. Mr. Herbert J. Hamilton, Asst. Prof. Exams., New York Dept. of Education, Albany.

SOUTH DAKOTA: Pierre, Jan. 14. Sec., Dr. P. B. Jenkins, Waubay.

VERMONT: Burlington, Feb. 11. Sec., Dr. W. Scott Nay, Underhill.

WISCONSIN: Madison, Jan. 14. Sec., Dr. J. M. Dodd, 220 E. 2d St., Ashland.

WYOMING: Moorcroft, Feb. 12-14. Sec., Dr. H. E. McCallum, Laramie.

Medical Schools and Medical Students in India

A recent number of the *Indian Medical Gazette* contains a list of five medical "colleges" having 2,491 students enrolled and fourteen medical "schools" with 2,869 students. There are, therefore, nineteen medical teaching institutions having altogether 5,360 students, an average of 282 students each. The figures in detail are as follows:

MEDICAL COLLEGES

	Men	Women	Total
Grant Medical College, Bombay	653	52	705
Madras Medical College	416	32	448
Lahore Medical College	225	7	232
Calcutta Medical College	946	19	965
King George's Medical College, Lucknow	136	5	141
Totals	2,376	115	2,491

MEDICAL SCHOOLS

Campbell School, Calcutta	372	18	390
Dacca School	278	2	280
Royapuram School, Madras	269	11	280
Prince of Wales School, Tanjore	132	..	132
Vizagapatam School	112	..	112
Hyderabad School	137	..	137
Poona School	168	..	168
Ahmedabad School	198	2	200
Agra School	557	61	618
Ludhiana School (Women)	...	21	21
Burma School	93	7	100
Temple School, Patna	131	..	131*
Cuttack School	146	5	151
Berry White School, Assam	149	..	149
Totals	2,742	127	2,869
Totals both Colleges and Schools	5,118	242	5,360

* Includes 96 compounders.

Reports in the files of the Council on Medical Education show that the "colleges" named in the first list are of a standard recognized by the Conjoint Board of London, but the "schools" are not so accredited.

The article states that the accommodations for students in the medical teaching institutions are very inadequate, and that the question of increasing these accommodations is receiving serious attention by all local governments. It is common knowledge that one of the greatest needs in India—as in China—is of physicians having a knowledge of and who practice scientific medicine.

Massachusetts July Examination

Dr. W. P. Bowers, secretary of the Massachusetts Board of Registration in Medicine, reports the oral, practical and written examination held at Boston, July 9-11, 1918. The examination covered 13 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 56 candidates examined, 40, including 1 nongraduate and 13 osteopaths, passed, and 16, including 10 osteopaths, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University		(1918)	82.9
College of Physicians and Surgeons, Baltimore		(1902)	75
Johns Hopkins University		(1918)	83.4

Boston University	(1918)	77.6
College of Physicians and Surgeons, Boston	(1917)	75
Harvard University (1918) 80, 80.3, 80.4, 81.2, 83.8, 84.6.		
Middlesex College of Med. and Surgery	(1918)	*76.5,81.1
Tufts College Med. School (1916) 79.5; (1917) 80.1; (1918) 75, 75.1, 80.5, 81.2.		75
University of Michigan Medical School	(1916)	79
University and Bellevue Hospital Med. Coll.	(1917)	80.6
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1911)	82.1
University of West Tennessee	(1916)	75
University of Vermont	(1918)	84
McGill University	(1918)	83.1

FAILED

College of Phys. and Surg., Boston	(1915) 68.5; (1916)	65.5, 66.5
Middlesex College of Medicine and Surgery	(1918)*	60
Tufts College Medical School	(1918)	72.3
University of Berlin	(1903)	58.1

* Graduation not verified.

Dr. Bowers also reports that 5 candidates were licensed at the special examinations held for War Service, June 11-12, July 30-31, and Aug. 8, 1918. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Harvard University	(1917) 86; (1918)	79.7, 82.2
Tufts College Medical School	(1918)	78.3
University of Vermont	(1911)	79.2

Idaho October Examination

Dr. Ray H. Fisher, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Boise, Oct. 1-2, 1918. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Eleven candidates took the physician's and surgeon's examination, including 2 osteopaths, all of whom passed. Seven candidates were licensed through reciprocity. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
State University of Iowa Coll. of Homeo. Med.	(1889)	76
Louisville Medical College	(1894)	75
University of Michigan Medical School	(1891)	78
University Medical College of K. C.	(1897)	80
University of Buffalo	(1899)	75
Western Reserve University	(1918)	84
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1917)	77
University of Tennessee	(1894)	75
University of Texas	(1910)	80

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Colorado	(1916)	Utah
George Washington University	(1916)	Washington
Drake University	(1907)	Washington
Baltimore University	(1903)	New Mexico
Michigan College of Medicine and Surgery	(1904)	Utah
Missouri Medical College	(1882)	Utah
University of Oregon	(1910)	Oregon

Michigan October Examination

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 8-10, 1918. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Three candidates were examined, all of whom passed. The following colleges were represented:

Dr. Harison also reports that 14 candidates were licensed through reciprocity from Sept. 3 to and including Nov. 20, 1918. The following colleges were represented:

College PASSED	Year Grad.	Per Cent.
Johns Hopkins University	(1918)	87.8
University of Michigan Medical School	(1918)	86.8
University of Michigan Homeo. Med. School	(1918)	86.1

College LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett College of Eclectic Med. and Surg.	(1898)	Illinois
Hahnemann Med. Coll. and Hosp. of Chicago	(1910)	Illinois
Northwestern University	(1895)	Illinois
University of Illinois	(1916)	Illinois
Kansas Medical College	(1899)	Missouri
Johns Hopkins University	(1917)	Maryland
University of Michigan Medical School	(1885)	Illinois
	(1900)	Mississippi
Pulte Medical College	(1882)	Ohio
Medico-Chirurgical College of Philadelphia	(1912)	Penna.
University of Pennsylvania	(1905)	Penna.
Vanderbilt University	(1913)	Tennessee
University of Vermont	(1914)	Virginia
Western University	(1896)	Missouri

Medicolegal

Diagnosing Is Practicing Medicine—Chiropractor

(*State v. Rolph* (*Minn.*), *167 N. W. R. 553*)

The Supreme Court of Minnesota, in affirming an order denying the defendant, a chiropractor, a new trial after she had been convicted of practicing medicine without a license, in violation of Section 4981 of the General Statutes of Minnesota of 1913, holds that the act of a person who styles himself a doctor, in receiving a patient who has applied to him for medical attention, and examining such person and diagnosing his ailment or disease and recommending an operation as treatment therefor, is practicing medicine within the meaning of the Minnesota statute prohibiting the practice thereof without a license, though he prescribes no drug and administers no specific treatment to the patient. The court says that the science of diagnosing human diseases and human ailments has come to be a distinct branch or department of the medical profession; the diagnostician limiting his efforts to a discovery of the disease or ailment from which the patient may be suffering, its character and location, leaving the treatment thereof to some other physician or surgeon. This is a matter of common knowledge. And it requires no discussion or argument to demonstrate that the physician who thus applies his learning and energies is performing a highly important duty of the profession, and is engaged in the practice thereof, though he prescribes no drug and administers no specific treatment. If a physician so limiting his services is practicing medicine, of which there can be no doubt, then in the case at bar the question whether the defendant, in diagnosing the ailment of the person named in the indictment, was likewise engaged was at least a question for the jury.

The evidence disclosed that the defendant was not a licensed physician and surgeon, but was a chiropractor who for several years had been practicing at Minneapolis. Some time prior to the date charged in the indictment she advertised that she would be at Granite Falls on a given date, to remain for three days to extend relief to those who might apply to her. She held herself out as Dr. B. Elizabeth Rolph, and posters were distributed announcing her coming. Cards with her name as just stated were placed on the doors of her rooms at the hotel, where she received patients. She was accompanied by a nurse, who assisted in the examination of persons applying for help, and in the administration of the treatment given them. They shared equally in the profits. The person named in the indictment, who had been in ill health a long time, was received as a patient, and an examination and diagnosis made by the defendant, assisted by the nurse, disclosed an abdominal tumor, for which the defendant recommended an operation by some competent surgeon. The defendant did not attempt to treat that condition, but did apply to the patient the usual chiropractic treatment, and at the conclusion of all a fee of $2 was charged, and paid. The question was raised whether the fee was paid for the preliminary examination or diagnosis or for the treatment; but the dispute was not of serious moment. The examination and treatment constituted one transaction, and whether the fee was exacted for the treatment, excluding the diagnosis, was a fair question of fact. The trial court held it to be immaterial. That the evidence showed that the defendant administered chiropractic treatment to other patients, for the same fee each, was important only as indicating that the examination of the particular patient with the advice of an operation was not an isolated transaction or a neighborly act. The evidence clearly justified the jury in finding the facts substantially as charged in the indictment, and thereon in concluding that the defendant was practicing medicine within the meaning and in violation of the Minnesota statutes.

The indictment was sufficient, although the charging part thereof was limited to the specific acts deemed a violation of the statute, and did not charge a commission of the crime in general terms.

Damages Allowed Aged Physician for Injuries

(Rust v. Washington Tool & Hardware Co. (Wash.), 172 Pac. R. 846)

The Supreme Court of Washington affirms a judgment for $2,500 damages in favor of the plaintiff, a physician 78 years of age, who was injured by falling into an open elevator shaft in a store where he was making purchases. The court says that an agent of a company that carried a liability policy of insurance on the elevator having been at once summoned after the accident, on payment of $20 obtained from the plaintiff a release and affidavit exonerating the defendant, but there was evidence that the plaintiff did not know what he was doing when he signed them. In deciding against the contention that the award of $2,500 for the injury sustained was excessive, the court says that the evidence showed that the plaintiff, although at the advanced age of 78 years and with but a short expectancy of life, was still practicing his profession as a physician, and was incommoded therein by the condition of his foot, which still caused him pain in its use. At the time of the accident he suffered a dislocation of the kneecap, cuts and bruises about the head and body, and a dislocation of the bones of his foot. He was confined to his bed for several weeks, and compelled for seven or eight months to use crutches. The ankle was stiffened, the bones of the foot had fallen down, there was no arch, and the heel bone was left unaided to sustain his weight. The bones were in such a condition that they must be kept in place by tight bandages of adhesive tape, a heavy iron form must be used in the shoe so as to create an artificial arch, and a cane was necessary to assist in walking. The injury was permanent and one that could not be remedied by an operation. The plaintiff still suffered pain in the use of the foot and whenever the bandages were adjusted. While the award appears to the supreme court large, in view of the advanced age of the plaintiff, the trial court in the exercise of its discretion refused to make a reduction, and the supreme court feels that it would not be warranted, under the circumstances and showing made, in interfering with the award returned by the triers of the fact.

Nature of Action for Death from Abandoning Patient

(Cochran v. Laton (N. H.), 103 Atl. R. 658)

The Supreme Court of New Hampshire, in overruling the defendant's exceptions in this action brought by an administrator and resulting in a verdict for the plaintiff, says that the only question of law raised by the defendant's exceptions to the court's charge, its refusal to charge, and to the admission of evidence as to the deceased's expectation of life was whether an action to recover for a death caused by a physician's abandoning his patient is an action of tort for physical injuries to the person within the meaning of Public Statutes, Chapter 191, Sections 8-13, Section 8 providing in substance that such an action shall survive in the way and to the extent set forth in the following five sections, and the court holds that the action is such a one of tort within the meaning of the statute.

Charitable Institutions Not Within Provisions of Workmen's Compensation Act

(Zoulalian v. New England Sanatorium & Benevolent Association (Mass.), 119 N. E. R. 686)

The Supreme Judicial Court of Massachusetts, in overruling exceptions to a verdict for the defendant, says that this was an action for personal injuries received by the plaintiff while in the employ of the defendant and at work on a buzz planer. The defendant was a corporation "for the purpose of founding a hospital or charitable asylum . . . for the care and relief of indigent or other sick or infirm persons . . . and in no manner directly or indirectly for private profit or dividend paying, to any one." It was plain that the objects of the corporation being benevolent and charitable, it must be held to be a valid public charity.

It was the contention of the plaintiff that the defendant was within the provisions of the workmen's compensation act (Statutes of 1911, Chapter 751, and acts in amendment thereof); but the court is unable to agree with this contention. While it is provided by Section 2 of Part 1 that "the provisions of section one shall not apply to actions to recover damages for personal injuries sustained by domestic servants and farm laborers," it does not follow that all other employees who may be injured in the course of their employment are within the terms of the act. Undoubtedly the rules of law declared by this court relating to persons injured while in the employ of charitable institutions may be changed by the legislature, still that such change was made by the workmen's compensation act is not to be inferred in the absence of a plain intention on the part of the legislature to that effect.

It never has been held in this commonwealth that a charitable institution was liable for negligence; on the other hand, it has been expressly held that such institutions are not liable for negligence of their servants or agents. For many years prior to the enactment of the Statute of 1911, Chapter 751, this court in numerous decisions had uniformly held that a charitable institution was not liable for personal injuries due to the negligence of its servants or agents; and it is to be assumed that the legislature had the existing law in mind when the statute was passed. The court is of the opinion that, considering the statute as a whole together with its manifest purpose and the objects sought to be accomplished by it, it was not intended thereby to change the law as it previously stood and include employees of charitable institutions.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, New York

December, 1918, **78**, No. 492

1 *Benefits of Stab-Wound Drainage in Pelvic Infections. H. W. Yates.—p. 745.
2 *Does Surgery Ever Cure a Case of Cancer. M. A. Tate.—p. 749.
3 Gall-Bladder Disease and Its Differential Diagnosis. J. F. Erdmann.—p. 752.
4 Acute Gastric Dilatation. Report of Cases. W. J. Gillette.—p. 758.
5 *Sarcoma of Left Ovary in a Child Twenty-Three Months Old. H. E. Hayd.—p. 764.
6 *Case of Abdominal Pregnancy at Term. T. B. Noble.—p. 767.
7 *Rôle of Congenital Colonic Membranes as a Causative Factor in Disease. J. P. Runyan.—p. 770.
8 Case of Pancreatic Cyst in Association with Tubercular Kidney and Intestinal Complications. J. E. Sadlier.—p. 773.
9 Radical Treatment of Cancer of Cervix By Igniextirpation (Werder Operation). E. A. Weiss.—p. 776.
10 *Heart in Pregnancy. L. Burckhardt.—p. 785.
11 Forceps Rotation of Head in Persistent Occipitoposterior Positions. A. H. Bill.—p. 791.
12 Doctor John Bard. G. K. Dickinson.—p. 796.
13 *Study of Pregnancy Toxemia. G. C. Mosher.—p. 803.
14 *Pathologic Conditions of Pelvic Viscera, Result of Induced Abortions Causing Sterilization, Disclosed by Abdominal Section. F. Reder.—p. 823.
15 Irving W. Potter Method of Practicing Version. E. G. Zinke.—p. 829.
16 *Cesarean Section Under Local Anesthesia. W. M. Brown.—p. 836.
17 *Indications for Cesarean Section, Personal Experiences in 109 Cases. A. J. Rongy.—p. 840.
18 *Sterilizing Women When Operating for Tubercular Peritonitis. J. H. Carstens.—p. 849.
19 *Case of Ligation of Inferior Vena Cava. T. B. Noble.—p. 851.

1. Abstracted in THE JOURNAL, Oct. 19, 1918, p. 1339.

2. **Does Surgery Ever Cure a Case of Cancer.**—Unless there be evident metastases and the patient can stand operation, Tate believes that it is the physician's duty to mankind to operate without delay, even if there be only a temporary improvement. A hopeless case, where there is no chance for even the prolongation of life, should never be subjected to surgery.

5. Abstracted in THE JOURNAL, Oct. 25, 1918, p. 1434.

6. **Abdominal Pregnancy at Term.**—Noble's patient became pregnant in November. Her condition was diagnosed in May. She was laparotomized in August. Pulling aside the margins

of the incision, a very unusual picture was revealed. A very large area of very thin, almost transparent, amniotic sac lay beneath the abdominal wall, through which could plainly be seen the body of the fetus in vigorous activity. The omentum and transverse colon lay covering across the upper zone of the sac to which they were very intimately adherent. There were adhesions between the amniotic sac and the parietal peritoneum in front. It seemed that nature had everywhere utilized the viscera as a substitute for the uterine wall, but had been scrupulously careful to prevent attachment to the unstable abdominal wall in front. An attempt was made to dissect the omentum and transverse colon from the amniotic sac, but the fusion between these substances was so close that rupture of the sac almost immediately took place. Through this rent, a well-developed baby was delivered, crying lustily. The cord was tied and cut and attention then given to the placenta and its membranes. The membrane was adherent to the omentum, transverse colon, coils of intestines and mesentery. The placenta, which was very large, was attached to the mesentery of the sigmoid, the posterior aspect of the broad ligament and the floor of the pelvis. Everywhere the vessels coming to this area were enormously enlarged, many of the venous channels in the mesentery and the broad ligament being as large as a finger. The fetal head had been resting on that portion of the placenta covering the floor of the pelvis. The child weiged 8 pounds and 6 ounces when delivered.

7. Abstracted in THE JOURNAL, Oct. 25, 1918, p. 1434.

10. Abstracted in THE JOURNAL, Oct. 19, 1918, p. 1340.

13, 14, 16 and 17.—Abstracted in THE JOURNAL, Oct. 19, 1918, p. 1339.

18. Abstracted in THE JOURNAL, Oct. 25, 1918, p. 1434.

19. **Ligation of Inferior Vena Cava.**—During the removal of a growth lying in front of the lower lumbar vertebrae and behind the peritoneum, the vena cava was torn diagonally across more than half of its circumference. The edges could not be approximated so as to make a safe suture, so Noble ligated above and below with plain catgut. Trusting to the collateral circulation between the iliacs and epigastrics to take care of the return of the blood from the lower extremities, the cut in the posterior peritoneum was closed with a running catgut suture, and the abdomen closed in the usual way without drainage. This patient, a woman, aged 62 years, made an uninterrupted recovery without swelling or edema of the legs, or any untoward symptoms whatever, and has remained in good health since.

American Journal of Medical Sciences, Philadelphia

December, 1918, **156**, No. 6

20 Early Diagnosis of Lead Poisoning, with Special Reference to Abdominal Pain. G. L. Apfelbach.—p. 781.
21 *Opaque Meal vs. Stomach Tube in Diagnosis of Gastric Hypomotility. I. H. Levy.—p. 795.
22 *Aplastic Anemia. Report of Cases. J. P. Schneider.—p. 799.
23 Diagnosis and Treatment of Diaphragmatic Pleurisy. Report of Cases. T. H. Kelly and H. B. Weiss.—p. 808.
24 Fractional Examination of Duodenal Contents. M. Einhorn.—p. 817.
25 Clinical Value of Estimation of Kidney Function. E. H. Mason.—p. 830.
26 Open Pneumothorax. Its Relation to Treatment of Empyema. E. A. Graham and R. D. Bell.—p. 839.
27 *Irritable Heart or Effort Syndrome. T. A. Smith and D. Bovaird.—p. 872.
28 *Lobar Pneumonia Treated with Anti-Pneumococcus Serum at General Hospital No. 6, Fort McPherson, Georgia. C. N. B. Camac.—p. 887.

21. **Diagnosis of Gastric Hypomotility.**—On the basis of clinical observation of 2,600 cases, Levy emphasizes that a rational test for gastric emptying should be based on a meal of ordinary bulk and complexity which the patient should dispose of in seven hours, and that the roentgen-ray test as commonly practiced is not sufficiently delicate for many clinical purposes.

22. **Aplastic Anemia.**—Schneider reports three cases. These three cases occurred in females. Two were definite asthenics, with a 30 gram thymus at the age of 26 in one. One was of normal habits. A definite history of a remote stomatitis or "cold in the head" was absent in two, but present in one. Between this and the fulminating onset with hemorrhagic symptoms there was a period of three and a half months of progressive anemia in this case, and this period of insidiously but rapidly developing anemia was also present in the first two cases. All three were free of clinical evidence of excessive blood destruction: pale sclera, pale urine and small liver and spleen. Viewed in the light of his findings and influenced by the postmortem observations of Engel and Hirschfeld, Schneider feels that proper emphasis should be placed on the fact of toxic marrow destruction, in a reconsideration of the terms by which this disease is known. Aplastic anemia implies congenital defect. Hypoplastic and aregeneratory imply poorly developed marrow readily failing on demand. Schneider suggests that a better term would be toxic paralytic anemia or toxic anhemopoietic anemia.

27. **Irritable Heart or Effort Syndrome.**—The inferences drawn by Smith and Bovaird from a study of fifty cases are summarized as follows: The irritable heart or effort syndrome cases constitute a symptom complex rather than a definite disease. It seems clear there is no definite disease of the heart, and they agree with Lewis that it is highly desirable to avoid any terminology which suggests that there is. The affection is not peculiar to soldiers but often precedes entry into service, though it may be exaggerated or in some cases produced by the active exercise or vicissitudes of the military life. Occupation in civil life is as much a result as a cause of the disturbance, in that men who know their weakness usually adopt an employment suited to it. In the great majority of cases no definite cause of the disorder is ascertainable. When such can be found it is most often an acute infection. Tobacco, alcohol, coffee and tea, though possible causes of aggravation of the symptoms, cannot be regarded as prime factors in the causation. Hyperthyroidism is suggested in some of the cases, but if present it is in a mild degree, and there seems no valid ground for regarding it as more than a contributory factor. In the light of the experience now available in the studies of Da Costa and the British commission it would seem wise to retain many of these patients in the hope of rendering them fit for duty of some kind. In view of their very limited usefulness in foreign service they should not be sent abroad. For the present, at least, the line of treatment must be that of progressive physical training as laid down by the British commission, which, even if it fails to produce satisfactory therapeutic results offers the best means of classifying the men as to their physical ability to perform military service.

28. **Lobar Pneumonia Treated with Antipneumococcus Serum.**—Camac's report deals especially with cases which were diagnosed clinically, bacteriologically and by postmortem as lobar pneumonia due to the pneumococcus cases which show, clinically, consolidation of part or of an entire lobe of the lung and due to the pneumococcus. The amounts of serum administered have varied between 50 c.c. and 600 c.c., with an average of 250 c.c. About 10 per cent. of the cases did not require serum treatment. Few patients came under treatment later than the third or fourth day, and many of them have been treated in the first forty-eight hours. Treatment was begun on the first clinical sign, without waiting for differentiation of type. For this purpose polyvalent serum was used. If the case showed Type I this serum was used, otherwise polyvalent serum was continued. No systematic blood cultures were made, but from the Rockefeller report and from his low mortality, Camac concluded that the early administration of serum prevented the development of or cleared the blood of pneumococcus organisms. In the few cases in which blood cultures were made this conclusion was supported. The rapid recovery of between 50 and 60 per cent. of all patients would indicate that the early use of serum tends to diminish the frequency of the complications. Dichloramin-T in chlorcosane 2 per cent. was used as a throat spray for attendants and with some of the cases. With the measles cases pulmonary complications were less frequent when this treatment was employed. About 50 per cent. of the cases showed signs of serum reaction. These ranged from simple erythema to the extensive urticaria, with general swelling

and joint pains. Some of the severer cases developed after 50 c.c. of serum had been given and others showed no reaction after 400 to 600 c.c. Manifestations appeared from twelve hours to fourteen days after administration. Only two cases showed any alarming features. Only one case presented symptoms of anaphylaxis. This was a case of asthma of unknown cause. Camac says that if more than 250 c.c. of serum are required and the temperature and toxic signs continue, complication by other organism should be suspected; like malaria when treated with quinin the pneumococcus is rapidly overcome by serum. Uncomplicated pneumococcus infection is a comparatively harmless and rarely a fatal condition.

American Journal of Orthopedic Surgery, Boston

October, 1918, **16**, No. 10

29 Excisions of Septic Joints. R. B. Osgood.—p. 323.
30 Orthopedic Surgery in Zone of Advance. K. Emerson.—p. 333.
31 Cody Orthopedic Casual Detachment. E. A. Rich.—p. 340.
32 Orthopedic Treatment of Nerve Lesions. W. G. Erving.—p. 346.
33 Importance of Care in Diagnosis of Back Conditions. J. A. Nutter.
34 Carrel Treatment of War Wounds in 1918. G. W. Hawley.—p. 354.
35 *Atlas and Axis Luxation. C. M. Jacobs.—p. 357.
36 Restoration of Function to Stiff Fingers. M. Langworthy.—p. 365.
37 Cystic and Fibrocystic Disease of Long Bones. W. H. Meyerding.—p. 367.

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38 *Effect of Faulty Skeletal Alinement on Eyes.—C. L. Lowman.—p. 459.
39 Distortion of Pelvis from Posture. W. J. Merrill.—p. 492.
40 Carrell-Dakin Treatment at Oxford, England. J. Dunlop.—p. 495.
41 Loose Osteocartilaginous Bodies in Shoulder Joint. M. S. Henderson.—p. 498.

35. **Atlas and Axis Luxation.**—Jacobs reports three cases of dislocation of the atlas not complicated by fracture of the odontoid process of the axis and without the usual history of traumatism.

38. **Effect of Faulty Skeletal Alinement on Eyes.**—Lowman reports the results of his study of forty-six cases which show that spinal malalinement may be causative of active or potential deviations of the eyes, or of pathologic changes, such as glaucoma or sympathetic conjunctivitis.

Archives of Internal Medicine, Chicago

Dec. 15, 1918, **22**, No. 6

42 *Intensive Study of Fifty Cases of Neurocirculatory Asthenia. A. Friedlander.—p. 693.
43 *Excretion of Creatin, Creatinin, and Uric Acid in Acute Febrile Conditions. C. W. McClure.—p. 719.
44 *Comparative Food Value of Protein, Fat and Alcohol in Diabetes Mellitus as Measured by Nitrogen Equilibrium. H. O. Mosenthal and G. A. Harrop, Jr.—p. 750.
45 *Physiology of Stomach. Hunger and Appetite in Pulmonary Tuberculosis. J. Meyer.—p. 759.
46 *Electrocardiogram in Thyroid Disease. P. D. White and J. C. Aub.—p. 766.
47 Renal Function as Measured by Elimination of Fluids, Salt and Nitrogen, and Specific Gravity of Urine. H. O. Mosenthal.—p. 770.
48 *Tachycardia of Unknown Origin. T. B. Barringer, Jr.—p. 805.
49 *Effect of Thymus Gland Injection on Growth and Behavior of Guinea-Pig. D. M. Olkon.—p. 815.

42. **Study of Neurocirculatory Asthenia.**—The authors have studied fifty cases taken from all varieties of military service men deemed unfit for overseas duty and who, in contradistinction to the possible infectious and functional group, were selected because of the constitutional or preenlistment nature of their complaint. Measles, whooping cough and tonsillitis seem to have played the greatest rôles in the past history of these cases. Gonorrhea, pneumonia, scarlet fever, rheumatic arthritis and typhoid are next in frequency, and it is to this group of diseases that 22 per cent. of the patients dated the onset of their condition. Pain in the precordial region was the most frequent symptom complained of. Dyspnea on exertion, paroxysmal palpitation, giddiness, nervousness, weakness, sweating and flushing were next in order of frequency of occurrence. No one symptom predominated. Precordial distress, including dyspnea, pain and palpitation, nervousness, weakness and giddiness characterize the syndrome. Twenty-two per cent. gave a history of a sudden onset and these dated their condition from some previous illness, although this entire group had been more or less nervous and below par since childhood. In 78 per cent. the onset was gradual and the majority of these could give no definite reason or cause for their present condition. In most cases repetition of symptoms occurred with exercise, many others were due to emotional disturbances, and the remainder persisted constantly. Forty-seven out of the fifty cases under observation gave a history of nervousness and cardiac distress previous to induction into military service. Development of symptoms followed scarlet fever in one case and the severe strain of overtraining in two cases.

The majority of this group showed vasomotor instability as evidenced by alternating flushing, pallor, cold, cyanotic, clammy extremities and marked evidence of dermatographia. Fifty-two per cent. were robust and well developed, while 40 per cent. were rather slender, flat chested and showed poor muscular tone. One man had a right side empyema following pneumonia. Examination of the lungs showed no evidence of structural change. No one in the entire group presented evidence of structural cardiac change. The relative cardiac dulness was constantly within normal limits. Twenty-two per cent. had functional apical murmurs, while 28 per cent. had accidental pulmonic systolic murmurs. Two men showed impure first apical sounds, while two had a reduplication of the first sound. The response to exercise was fair in 40 per cent., good in 50 per cent., and poor in 10 per cent. Ten per cent. of the men had an apical systolic thrill palpable after exercise or excitement. A respiratory arrhythmia more marked in some than in others was present in all cases. Twenty per cent. of the cases under observation presented thyroid tumor to a greater or less degree. Ninety per cent. had chronic suppurative tonsillitis; thirty-two per cent. showed deviation of the nasal septum, 20 per cent. chronic sinusitis, while 8 per cent. gave evidence of otitis media. Sixty-six per cent. of the group presented no evidence of oral infection. Thirty-four per cent. gave positive findings of a degree indicating extraction.

All patients denied syphilis, while 24 per cent. admitted gonorrhea. Of the Wassermanns made only two (or 4 per cent.) were returned positive (++). No man presented an active gonorrhea. Rectal examination of the prostate showed 10 per cent. to be soft and slightly enlarged, 10 per cent. moderately enlarged, 6 per cent. small and nodular the remainder normal. Only one case presented a tender and enlarged right seminal vesicle. Smears made of the expressed secretions following prostatic massage were all negative. Routine urine examination failed to reveal any unusual findings. Average blood counts made on the fifty men showed very little of interest. Definite evidence of psychasthenia was obtained in four men, one of whom was a religious fanatic. Two were definite neurasthenics, while four showed positive neurologic findings. Fifty-six per cent. of this group measured normal adult mentality, while 44 per cent. ranged from 8 to 15 years of age.

43. **Creatin Excretion in Fever.**—McClure believes that disturbances in the excretion of creatin, creatinin and uric acid during the febrile period of the acute infectious diseases are, largely, an expression of the effect of toxins on metabolism. These disturbances may continue into the period of convalescence. In the cases studied it was found that the increased excretion of uric acid almost invariably accompanied acute febrile states. It was usually associated either with creatinuria, or with disturbances in the output of creatinin. At times all three phenomena were present. McClure's experimental findings indicate that the loss of uric acid, creatin and creatinin by the body, during acute febrile conditions, is retarded by a high caloric diet rich in carbohydrates.

44. **Protein in Diabetes Mellitus.**—According to Mosenthal and Harrop the addition of an equal number of calories of protein, fat or alcohol to a low caloric carbohydrate-free diet in cases of diabetes mellitus results in the assimilation of considerable amounts of nitrogen when the protein is used, a favorable nitrogen balance in only occasional instances with fat, and no change in the nitrogen equilibrium when

alcohol is given. This would point to a high protein diet as the most advisable low-calory, carbohydrate-free diet by which to conserve the body tissues and furnish a maintenance ration for the diabetic.

45. **Hunger and Appetite in Pulmonary Tuberculosis.**—This study was conducted on six patients with early, moderately advanced, and far advanced pulmonary tuberculosis. None of the patients showed signs of peritoneal or intestinal involvement or had any gastric complaint other than loss of appetite. The outstanding fact in all of Meyer's observations is that contractions and stomach tonus are present. The association in these cases of hunger contractions with absence of hunger sensations suggests the possibility that these contractions are probably not registered in consciousness as such. In these cases the personal factor must be considered. Hunger contractions are present in some individuals, but instead of being recognized by the patient as such they are described as restlessness, headache and other symptoms.

46. **Electrocardiogram in Thyroid Disease.**—Very limited parallelism was found by White and Aub between the basal metabolism and the amplitude of the electrocardiographic T wave in a series of twenty-seven cases of thyroid disease. Auricular fibrillation, including the paroxysmal type, is not uncommon in hyperthyroidism as shown in this series by six out of forty-seven cases of hyperthyroidism (13 per cent.). Paroxysmal auricular flutter was seen in one case. Tachycardia, frequent hypertension and frequent tremor while at rest occurred in the cases of hyperthyroidism although not always parallel to the total metabolism.

48. **Tachycardia of Unknown Origin.**—The reactions to work of fourteen men with tachycardia, between the ages of 21 and 30, were observed by Barringer, on a number of occasions. Five men were classified as belonging to a severe type, chiefly because of their inability to perform amounts of work which normal men are capable of and because the performance of comparatively small amounts of work was accompanied by signs of distress-dyspnea, exhaustion or precordial pain. The pulse rates of the severe type of cases were all higher than normal and all showed greater increases immediately after work than do normal men after the same quantities of work. The pulse rate failed to return to normal inside of 120 seconds in sixteen instances when the heart was overtaxed; five times it returned to normal inside of 120 seconds, although the heart was evidently overtaxed; on nine occasions it failed to return to normal inside of 120 seconds, although the heart was not overtaxed. The curve of the systolic blood pressure showed several interesting anomalies when compared with the curves of normal individuals. "A delayed rise" in pressure following heavy work is an almost invariable finding in normal persons. In these persons, both of the severe and mild types, it is seldom found, and when present does not persist as in normal people. The great majority of these patients, both severe and mild, also show blood pressure curves following increasing amounts of work of what may be called a "diminuendo" type. The curves, instead of mounting higher and higher as they do in normal persons after increasing quantities of work, fall lower and lower. The smallest amount of work was followed by the highest curve and the greatest amount by the lowest curve. The various reactions to work which Barringer describes make it evident that, whatever the underlying cause of the circulatory condition in this small group of men may be, the heart's reserve power in each one was decreased.

49. **Effect of Thymus on Growth.**—Olkon succeeded in obtaining a reduction of weight in the male guinea-pig by the injection of thymus gland intraperitoneally. After the injection, well marked changes took place, namely, muscle spasm, dyspnea, and convulsion. The muscular spasms that occurred after thymus was injected appeared more severe and of longer duration than of either the muscle or of the tenth-normal sodium chlorid injected guinea-pigs. Some animals died after large doses of thymus injection. The general appearance of the animals in the thymus series was that of grave metabolic disturbances, emaciation, accompanied by dryness and roughness of their fur.

Arkansas Medical Society Journal, Little Rock

November, 1918, **15**, No. 6

50 Inguinal Hernia. H. H. Kirby.—p. 99.
51 Intussusception. E. E. Ellis.—p. 104.
52 Use of Copper Sulphate as an Antiseptic. C. S. Pettus.—p. 106.

Boston Medical and Surgical Journal

Dec. 12, 1918, **179**, No. 24

53 Surgery of Stomach and Duodenum. J. T. Bottomley.—p. 719.

Bulletin of the Canadian Army Medical Corps

November, 1918, **1**, No. 7

54 Food Problem in Canadian Military Hospitals in England. I. D. Carson.—p. 92.
55 *Diphtheroid Infection of Wounds: Frequency of Diphtheroid Bacilli in Urethritis and Prostatitis. R. M. Janes and N. O. Thomas.—p. 96.
56 Urological Cases Illustrating What Can Be Done with Special Appliances. G. S. Gordon and C. M. McGill.—p. 98.
57 *Unusual War Psychoneurosis of Functional Loss of Sense of Smell. D. Wheeler.—p. 100.
58 *Fatal Case of Balantidiosis. F. B. Bowman.—p. 101.

55. **Diphtheroid Infection of Wounds.**—Sixty-three and five-tenths per cent. of open wounds examined by Janes and Thomas have shown diphtheroid organisms. Judging from those cases in which pure cultures were obtained, the authors believe that 6.4 per cent. of these open wounds showed infection with *B. diphtheriae*. Clinically, it is impossible to diagnose between diphtheroid and true diphtherial infection of wounds. A membrane does not necessarily indicate the presence of *B. diphtheriae* in wounds. It is not possible to distinguish between diphtheria bacilli and wound diphtheroids by morphological characters. Only by sugar reactions obtained from pure cultures can diphtheroid organisms be distinguished from true Klebs-Loeffler, and only after positive animal inoculation is it advisable to diagnose diphtheria in wounds. Flavine appears to have given better results than any other form of local treatment used in the hospital to which Janes and Thomas are attached. Hence it is considered advisable to administer diphtheria antitoxin in cases of diphtheria in wounds. The importance of giving a sensitizing dose in cases of war wounds due to their having received previous injections of serum is emphasized. If this rule is not followed severe anaphylactic reactions will occur in some cases.

57. **War Psychoneurosis: Functional Loss of Sense of Smell.**—Wheeler's case is interesting, because it demonstrates very clearly the four primary tastes. The man could only recognize things as acid, salt, bitter or sweet. He was quite incapable of recognizing any of his food—in fact, had lost that fine differentiation with which taste, and not smell, has usually been credited. He was unable to recognize volatile substances, such as strong ammonia, ether, oil of lemon, hydrogen sulphid, rosewater and oil of peppermint. Also a selection of different articles of foods were given to taste, such as cheese, butter, cabbage, potato, beef, jam, mutton, none of which were recognized. Considerable time was spent with the patient explaining his condition to him and assuring him that his sense of smell would be restored. A strong faradic current was applied to the back of the neck, and at the same time ammonia fortior was held under his nose, and he was instructed to tell what it was. At the end of one minute he recognized it as "ammonia." He next recognized oil of lemon with the aid of a weaker current.

58. **Fatal Case of Balantidiosis.**—This case occurred in a British West Indian soldier. Bowman says that a routine examination of the feces of men of the British West Indian Regiment disclosed that over 90 per cent. were infected with some parasite, and over 50 per cent. had hookworm disease. A trial with dilute solution of organic silver salts, both in balantidiosis and in amebic dysentery, is suggested.

Indiana State Medical Association Journal, Fort Wayne

Dec. 15, 1918, **11**, No. 12

59 Reporting Venereal Diseases. C. C. Pierce.—p. 435.
60 Physicians and Legislature. F. E. Schortemeier.—p. 436.
61 *Syphilis as It Pertains to the Eye. A. E. Bulson.—p. 438.
62 Anus, Rectum and Sigmoid. H. H. Wheeler.—p. 442.
63 Cerebrospinal Meningitis. Cases Occurring at Base Hospital, Camp Pike, Ark. C. G. Beall.—p. 445.

61. Abstracted in THE JOURNAL, Nov. 30, 1918, p. 1854.

Journal of Biological Chemistry, Baltimore

December, 1918, **36**, No. 3

64 Conductivity as a Measure of Permeability. W. J. V. Osterhout. —p. 485.
65 Effect of Diffusion on Conductivity of Living Tissues. W. J. V. Osterhout.—p. 489.
66 Proteins of Peanut, Arachis Hypogaea. C. O. Johns and D. B. Jones.—p. 491.
67 Influence of Protein Feeding on Concentration of Amino-Acids and Their Nitrogenous Metabolites in Tissues. H. H. Mitchell. —p. 501.
68 Urinary Excretion of Phosphates in Rabbit. F. P. Underhill and L. J. Bogert.—p. 521.
69 *Metabolic Changes Induced by Administration of Guanidin Bases. C. K. Watanabe.—p. 531.
70 Does Water Soluble Vitamine Function as a Catalase Activator? R. A. Dutcher and F. A. Collatz.—p. 547.
71 Curative Properties of Honey, Nectar, and Corn Pollen in Avian Polyneuritis. R. A. Dutcher.—p. 551.
72 Method of Measuring the Electrical Conductivity of Living Tissues. W. J. V. Osterhout.—p. 557.
73 *Effect of Maternal Ingestion of Desiccated Placenta on Rate of Growth of Breast-Fed Infants. F. S. Hammett.—p. 569.
74 Action of Enzymes on Human Placenta. V. J. Harding and E. G. Young.—p. 575.
75 Measurement of Acidity of Bread. E. J. Cohn, P. H. Cathcart and L. J. Henderson.—p. 581.
76 Quantitative Study of Evaporation of Blood Serum. G. H. Burrows and E. J. Cohn.—p. 587.

69. **Metabolic Changes Induced by Administration of Guanidin Bases.**—The administration of guanidin to the animal body induces a condition of severe acidosis with the retention of phosphates, a decrease of calcium in the blood, and a hypoglycemia. These phenomena are also observed in tetania parathyreoprivia. Further, the symptoms and all other physiologic evidences in guanidin tetany are almost the same as in tetania parathyreoprivia. Since the discovery of the large increase of guanidin bases in tetania parathyreopriva and idiopathic tetany, Watanabe suggests that perhaps the fundamental cause of tetany is the increased formation of guanidin nitrogen brought about by the disturbance of the function of the parathyroid.

73. **Effect of Placenta on Growth of Infants.**—During a series of experiments designed to show whether or not the maternal ingestion of desiccated placenta would have an effect on the chemical composition of the milk produced during the early stages of lactation, a comparison of the growth of the infants feeding on the milk produced during its administration with the growth of those subsisting on milk from mothers who had not been given the material, led to the idea that the feeding of this substance to the mothers had an effect on the rate of growth of their breast-fed infants entirely aside from the percentage change in the determined constituents. All patients were given desiccated placenta in the same dosage, e. g., 10 grains in capsules, t. i. d. From these, only those mothers were chosen whose parturition course was normal, and only the weights of those infants are utilized whose sole source of nourishment was the maternal breast. The diet of the mothers and the method of weighing of the infants were the same as reported in a previous paper on the normal growth capacity of infants. The effect of the ingestion of the desiccated placenta by the mothers on the rate of growth of the breast-feeding infants was at once apparent. In each group not only was the postnatal decline in weight less in amount, but also the gain in weight after the preliminary loss was greater in every case on every day than that recorded for the normal groups, the mean increase over the normal percentage change in weight on the thirteenth day being over 60 per cent.

There is no doubt that the rate of growth of breast-fed infants is enhanced by the maternal ingestion of desiccated placenta, for not only is the recovery to or over the initial weight generally more rapid, but the weight is almost uniformly greater. The growth capacity of infants subsisting on the milk produced during the administration of desiccated placenta is also increased. A large series of comparative measurements of the mammae of women taking and not taking the desiccated placenta, combined with a study of the time of onset of full milk production, failed to show either hypertrophy of the gland or an increased milk production on the part of those women ingesting the placenta material. Hammett concludes that there must be contained in the desiccated placenta some substance, or substances, capable of passing through the maternal organism with at least a part of its activity retained. Being secreted by the mammary glands, it is passed onto the infant in the milk, there acting as stimuli to growth.

Journal of Cancer Research, Baltimore

October, 1918, **3**, No. 4

77 *Occupational Cancer. H. C. Ross.—p. 321.
78 *Multiple Skin Metastases from Cancer of Internal Organs. N. Suzuki.—p. 357.

77. **Occupational Cancer.**—A recent government inquiry into pitch cancer at the briquette works in South Wales, England, disclosed some new clinical facts which make it appear that some definite if not specific, chemical rather than mechanical action is concerned in the causation of individual cancer. This led Ross to the investigation of other commodities the use of which also gives rise to cancer under certain conditions; and when all of them are examined collectively, there seems to be considerable evidence, both circumstantial and experimental, to show an association between certain chemical products of death and putrefaction contained in or produced by the commodities themselves and the onset of the disease. Ross investigated coal, tar, pitch, soot, napthalene, and other tarry commodities, anilin dyes, petroleum, grease, tobacco, betel nut, roentgen rays and radium rays, arsenic cancer and manure. This investigation showed that mechanical injury per se can play only a minor part in the predisposition to occupational cancer. Apart from the evidence in this respect given by the coal-tar industries, the action of petroleum, arsenic, manure, tobacco, etc., also demonstrates it; for some of these commodities are solids, some are liquids, and physically they differ a great deal in other respects. Yet they all seem to bring about the predisposition to malignancy in a somewhat similar manner, namely, by becoming impacted in the tissues, where, by giving rise to cell proliferation, they produce a warty condition. The warts usually ulcerate at their bases and drop off, leaving an intractable sore. It seems to be the edges of the ulcers that become epitheliomatous, and there appears to be a specific liability, when the industrial warts are untreated, for this to happen.

All of the active commodities examined, with one exception, are products of, or are derived from, the products of the death and decomposition of living matter, although such death may have occurred centuries previously. Coal and its derivatives, including paraffins, charcoal, tobacco, betel nut and manure, all have such a derivation; the one exception is arsenic, and that, being a powerful cell poison, may possibly produce the products of cell death and decomposition in the tissues. In this connection, Ross calls attention to the fact, that carcinoma seems more frequent, in general, at sites which are continually subjected to organic matter undergoing bacterial decomposition, such as the rectum, stomach and indeed the whole intestinal tract, mouth, uterine cervix, breast (chiefly in women who have borne children), prepuce, anus, scrotum, etc. In sarcoma, on the other hand, this does not apply, any more than does the age incidence; but with occupational epithelioma especially, given that the predisposing cause of the disease is present equally in different parts of the body, it is usually in that part which is the dirtiest or which is affected with open ulceration that the malignant condition supervenes. Decaying organic matter of all descriptions fertilizes living matter, and promotes cell proliferation, being used extensively for the growing of plants in agriculture. Up to a certain point, the more putrid the matter, the more pronounced is this fertilizing property.

There is a probability that the mischievous agents are organic nitrogenous substances of a group common to all the dangerous commodities. In the coal carbonization commodities, the fact that the coal is bituminous seems to be essential. Other analytic experiments showed that the active agents were nitrogenous substances produced by the decomposition of proteins, and several were isolated and proved to consist, among others, of some of the purin bases, such as

creatin, xanthin and tyrosin. For convenience the name auxetic was given to these cell division producing agents. Auxetics undoubtedly prompt proliferation. Healing of a damaged site presumably is brought about by auxetics set free by the injurious agent, the amount of proliferation being in ratio to the amount of damage, a theory which seems to be a reasonable one. Experimentally, therefore, the action of the commodities can be explained by the auxetics or augmentors contained in the commodities themselves. They become impacted in the tissues, either in the hair follicles or the sebaceous glands, or perhaps in fissures caused by slight mechanical injury. Auxetics are dissolved out of the commodities and set up cell proliferation, giving rise to thickening and warts. The warts slough and drop off, leaving an open ulcer, in which the overprolific cells at the edge are prone to become malignant.

The malignant invasion, judging by clinical evidence, seems to be due to some additional factor, possibly connected with production of more kinetics, which excite ameboid movement and still further augment the proliferation. Auxetics are produced as age advances, the physiologic increase of cell death during senescence having this result. It is part of the working hypothesis that the predisposition to cancer during senescence may be due to a predisposition to cell proliferation caused by auxetics physiologically free in the tissues in general. But in occupational cancer, in addition to the auxetics produced by any mechanical or chemical trauma, there are also those contained in the commodities themselves which would produce, and which actually seem to produce, a greatly increased if not specific predisposition. An effort is being made, to prove the auxetic theory by destroying those substances in tar on a large scale, and observing whether the destruction prevents the incidence of warts and cancer at the briquette works.

78. **Skin Metastases from Cancer of Internal Organs.**—An analysis is made of 110 cases which Suzuki collected from the literature, to which are added five cases that have come under his own observation.

Journal of Experimental Medicine, Baltimore

Dec. 1, 1918, **28,** No. 6

79 Effect of Feeding Sugar on the Esterase Content of Blood Serum and Organs in Phosphorus Poisoning. J. P. Simonds.—p. 663.
80 Peptolytic Power of Liver, Spleen, and Kidneys in Poisoning by Phosphorus and Chloroform. J. P. Simonds.—p. 673.
81 *Relative Irritant Properties of Chlorin Group of Antiseptics. G. E. Cullen and H. D. Taylor.—p. 681.
82 Spirilla Associated with Disease of Fetal Membranes in Cattle (Infectious Abortion).—T. Smith.—p. 701.
83 Bovine Mastitis. Infection of Udder with Micrococci and Other Microorganisms. F. S. Jones.—p. 721.
84 Id. Sources of Infection in Streptococcic Mastitis. F. S. Jones.—p. 735.
85 Survival of Hog-Cholera Virus in Laboratory Animals, Particularly the Rat. C. Tenbroeck.—p. 749.
86 Paratyphoid Bacilli Isolated from Cases of Hog-Cholera.—C. Tenbroeck.—p. 759.
87 *Standardization of Antimeningococcic Serum. H. L. Amoss and P. Marsh.—p. 779.
88 Changes in Virulence of Pneumococcus at Different Periods of Growth and Under Different Conditions of Cultivation in Media. A. B. Wadsworth and M. B. Kirkbride.—p. 791.

81. **Irritant Properties of Chlorin Antiseptics.**—From experimental observations made on rabbit's ears with these solutions, Cullen and Taylor conclude that Dakin's hypochlorite solutions, of which the alkalinity is kept within the range of from 100 to 1,000 times the alkalinity of water (p_H of 9.3 to 10.2) by means of buffer salts, have practically the same degree of irritant action. Moreover, the manner in which these solutions are prepared, whether from bleaching powder and sodium carbonate, or from chlorin and sodium carbonate, and the type of buffer salt used, either carbonate or borate, have no influence on the degree of irritation. Solutions, however, that have an alkalinity less than that indicated by the end-point of alcoholic solution of phenolphthalein (p_H of 8.5 to 8.8), or greater than that indicated by the end-point to powdered phenolphthalein (p_H of 10.2), are intensely irritating. The sodium hypochlorite solution from which most of the calcium has been precipitated, and calcium hypochlorite solution seem less irritating than Dakin's solutions. The alkalinity in these unbuffered solutions is due mainly to the hydrolysis of the hypochlorite and is decreased as the hypochlorite is decomposed. This, rather than any specific action of the calcium, is probably the explanation of their lessened irritant action. It is also evident that the hypochlorite solutions maintain effective antiseptic concentration for about the same period of time, regardless of the manner in which they are prepared.

87. **Standardization of Antimeningococcic Serum.**—Experiments were made by Amoss and Marsh for the purpose of testing the reaction of protection against infection as a measure of potency of antimeningococcic serum. The results of these experiments were extremely variable and bore no relation to the quality of the serums as determined by the period of immunization of the horses from which they were obtained, or the indications of efficiency based on their employment in human cases of epidemic meningitis. The results also failed entirely to conform to the agglutination titer of the serum tested and to be affected by the different type forms of the meningococci. The authors regard the protective power for laboratory animals of the antimeningococcic serum as an unsuitable index of its value in human medicine and as inferior to the agglutination titer as a standard of potency.

Kentucky Medical Journal, Bowling Green

December, 1918, **16,** No. 12

89 The Doctor and the War. F. H. Martin.—p. 539.
90 Outlook for Feeble-Minded in Kentucky. A. Dixon.—p. 545.
91 Latent or Potential Syphilis. J. T. Windell.—p. 552.
92 Endocrinology and Opotherapy of Shock. R. A. Bate.—558.

Maine Medical Association Journal, Portland

December, 1918, **9,** No. 5

93 Maine's Defective Delinquents and Backward Chil dren. G. G. Fernald.—p. 105.

Military Surgeon, Washington, D. C.

December, 1918, **43,** No. 6

94 *Rôle of Hand in Distribution of Influenza Virus and Secondary Invaders. C. Lynch, and J. G. Cumming.—p. 597.
95 Summary of Activities of Section of Otolaryngology. H. P. Mosher.—p. 631.
96 Importance of a History as a Means of Detecting Psychopathic Recruits. A. W. Stearns.—p. 652.
97 Epidemic Cerebrospinal Meningitis at Camp Wheeler, Georgia. H. B. Scovern.—p. 662.

94. Abstracted in THE JOURNAL, Dec. 28, 1918, p. 2174.

Missouri State Medical Association Journal, St. Louis

December, 1918, **15,** No. 12

98 Pulmonary Tuberculosis: Diagnosis and Prognosis. S. P. Child.—p. 423.
99 *Hodgen Splint in Treatment of Fractures of Femur. C. P. Sherwin.—p. 429.
100 *Hodgen Extension Suspension Splint. F. G. Nifong.—p. 432.
101 Personal Responsibility of Physicians to Nation. F. W. Burke.—p. 436.

99 and 100. Abstracted in THE JOURNAL, June 15, 1918, p. 1889.

New Jersey Medical Society Journal, Orange

December, 1918, **15,** No. 12

102 Meningitis. H. I. Goldstein.—p. 409.
103 Ocular Manifestation of Systemic and Local Disease. B. M. Howley.—p. 418.
104 Centennial Address. L. M. Halsey.—p. 418.

New Orleans Medical and Surgical Journal

December, 1918, **71,** No. 6

105 Resistance of Ova of Toxascaris Limbata. M. Wigdor.—p. 264.
106 Case of Popliteal Aneurysm—Matas Operation—Recovery. G. T. Tyler, Jr.—p. 281.
107 *Effect of Lemon Juice in Pellagra. J. N. Roussel.—p. 283.
108 Surgical Treatment of Pott's Disease. P. A. McIlhenny.—p. 287.

107. **Effect of Lemon Juice in Pellagra.**—Roussel records good results which he has obtained from administering the juice of three or four lemons daily to pellagrins. From experience, he is convinced that most pellagra is of the scorbutic type, a land scurvy brought about by the fact that

people, especially those living in our sawmill towns, are literally living out of tin cans and cartons—living on predigested and ready cooked foods.

New York Medical Journal

Dec. 7, 1918, **108,** No. 23

109 Blight of Theory on Acquisition of Anatomic Knowledge by Ancient Egyptians. J. Wright.—p. 973.
110 Site of Lessened Resistance in Focal Infection. E. Steinfield. —p. 976.
111 Whooping Cough in Newly Born. H. B. Sheffield.—p. 980.
112 Problems in Obstetrics. I. Josephson.—p. 981.
113 Back Injuries and Their Relation to Workmen's Compensation Law. J. C. Scal.—p. 983.
114 Treatment of Influenza. H. J. Novack.—p. 984.
115 Evolution and Dissolution of Tubercle Bacillus Capsule. M. Staller.—p. 985.

Southwest Journal of Medicine and Surgery, El Reno

November, 1918, **26,** No. 11

116 Symposium on Spanish Influenza. (Held at Annual Meeting of Medical Association of Southwest, Oct. 17, Dallas, Tex.)—p. 241.

Surgery, Gynecology and Obstetrics, Chicago

December, 1918, **27,** No. 6

117 Cylindrical Dilatation of Common Carotid Artery Following Partial Occlusion of Innominate and Ligation of Subclavian. W. S. Halsted.—p. 547.
118 *Empyema at Camp Doniphan. C. B. Ingraham, J. A. Roddy and J. D. Aronson.—p. 554.
119 *Extra-Uterine Pregnancy Following Resection of Tube and Insertion of Catgut to Keep It Open. E. H. Tweedy.—p. 563.
120 Id. B. Solomons.—p. 566.
121 Indications for Surgical Interference in Ulcus Ventriculi. M. H. Gross and I. W. Held.—p. 567.
122 Abduction Treatment of Fracture of Neck of Femur. R. Whitman. —p. 578.
123 Fractures of Lower End of Radius. J. R. Harger.—p. 586.
124 Clinical Study of Puerperal Anemia. H. B. Schmidt.—p. 596.
125 *Gonorrheal Empyema. H. S. Woodbery.—p. 601.
126 Commoner Lesions Producing Backache. W. E. Shackleton.—p. 602.
127 Bismuth Paste in Case of Osteomyelitis of Carpus. D. H. Morris. —p. 605.
128 Nasal Refracture. L. L. Stanley.—p. 609.
129 *Acute Infective Nephritis. Report of Cases. R. P. Campbell and L. J. Rhea.—p. 611.
130 *Hematogenous Infection of Ovary. Report of Case. S. Wiener. —p. 622.
131 Trocar-Harpoon Method of Foreign-Body Localization with a New Holder. E. S. Blaine.—p. 624.
132 Self-Retaining Retractor for Use with Albee Bone Outfit. J. B. Lowman, and R. B. Pratt.—p. 626.
133 New Transfusion Apparatus. J. S. Wight.—p. 628.
134 *Paralysis of Upper Extremity Due to Compression of Brachial Plexus by Scar Tissue. F. C. Watson.—p. 629.

118. **Empyema at Camp Doniphan.**—The high incidence of *Streptococcus hemolyticus* in the tonsils and nasopharynx of normal individuals during the period when streptococcic pneumonia and empyema were prevalent was observed by the authors. Blood cultures showed the presence of organisms late in the disease in grave cases only as a rule. A positive culture is a most unfavorable prognostic sign. The pleural exudate obtained from empyema cases from which hemolytic streptococcus was recovered showed a distinct difference in its physical characteristics in the majority of cases from the empyema fluid from which the pneumococcus was recovered. The streptococci recovered showed the same morphological and cultural characteristics, but the irregularity of serological reactions does not permit drawing definite conclusions as to their belonging to the same group. Agglutination reactions with patient's serum appeared to be of no diagnostic value because of irregularity of reaction with streptococci. Postmortem findings in cases presenting both pneumonia and empyema caused by streptococci showed in most cases distinct lobular pneumonia; in a number of cases the interstitial form of pneumonia, especially in the cases of patients who had been ill for a long time.

119. **Extra-Uterine Pregnancy Following Tube Resection.**—Tweedy urges the adoption of the catgut bougie as a means of keeping open the tube lumen. The critical period for closure of the tubes is comprised within the first three days after operation, while peritoneal exudation is poured out and adhesions are rapidly forming. Hence the catgut serves to effect the desired end and then is absorbed. The retention of the gut for many days in the tubes is harmful. The ciliated epithelium can hardly escape injury, and the irritative effect which it must exercise on the muscle layers of the tubes will be still more important. It seems to Tweedy certain that these muscle bundles by their peristaltic contractions must be the force which enables the ovum to reach the uterus and he feels sure that an arrest of their peristaltic wave is an important factor in the occurrence of tubal pregnancy. Silkworm gut, could it be used, would be free from the fear of exciting a chronic salpingitis but were it employed there must be some method perfected for its removal.

125. **Gonorrheal Empyema.**—Woodbery cites the case of a girl 8 years of age on whom he operated for a general peritonitis, probably due to a ruptured appendix. Drainage was instituted and the abdomen was closed without any further examination of the viscera, as the child was very ill and it was thought best not to prolong the operation. Following the operation the clinical course of the disease was that of a general peritonitis. On the sixth day after operation there were signs of a pneumonia or an accumulation of fluid at the base of the right lung posteriorly. On aspiration of the right chest there was obtained about 2 c.c. of a thick yellow pus. From this finding it was thought that the child had a right-sided empyema, a thoracotomy of the right chest was done. When the chest was first opened no pus could be demonstrated, but when the child was turned flat on her back a few cubic centimeters of pus flowed out of the wound. The child died in twelve hours from what seemed to be a respiratory failure. No necropsy could be obtained. On the second day after the first operation the child was found to have a profuse, yellowish vaginal discharge, and on examination of smears made from this there was found only the gonococcus, the diagnosis being made from the morphology and staining characteristics. Smears made from the pus obtained at the time of aspiration and at the second operation showed again the gonococcus. A blood culture made on the sixth day after the first operation, using special mediums, was negative. An attempt was made to grow the organisms seen in the pus from the chest but all the cultures remained sterile.

129. **Acute Infective Nephritis.**—The cases studied by Campbell and Rhea present a gross picture which is characterized by multiple, small or large areas of acute infection which may, and as a rule do, proceed to abscess formation. These areas are for the most part situated in the cortex. The infection is usually unilateral. Clinically, it is manifested by all the signs and symptoms of an acute illness. The lesions produced may resolve or may leave the kidney so damaged that complete recovery is impossible and may serve as foci on which further infection may develop. The commonest infecting organism is a member of the bacillus coli group, but other organisms as staphylococcus and bacillus typhosus may produce similar lesions. The infection is in most of the cases probably lymphatogenous, or hematogenous, and in some of the cases of bacillus coli infection, some abnormal condition of the gastro-intestinal tract, seems to play a distinct part. There are frequently no demonstrable lesions of the genito-urinary tract which might contribute toward the localization of infection in the kidneys. Treatment may be palliative, but operation may be necessary. If nephrectomy is required and is performed early in the disease the prognosis is good.

130. **Hematogenous Infection of Ovary.**—In Wiener's case the *Streptococcus hemolyticus* was found in cultures of the pus from ovarian abscess. The original source of the infection was not found.

134. **Paralysis of Upper Extremity.**—In Watson's case the three cords of the brachial plexus were compressed between the clavicle and the first rib by scar tissue, involving chiefly the inner and posterior cords. As the scar tissue was carefully dissected off, the plexus was found to be intact. To prevent the reformation of scar tissue, a fascia transplant from the patient's thigh was sutured about the inner and posterior cords. Five months after the operation the arm could be held at a right angle to the body. Sensation was nearly normal.

Tennessee State Medical Association Journal, Nashville

October, 1918, **11**, No. 6

135 *Proper Interpretation of Bladder Symptoms. G. R. Livermore. —p. 217.
136 *Surgical Treatment of Varicose Veins. W. S. Anderson.—p. 220.
137 Antrum Infection. W. Dotson.—p. 223.
138 Radium Therapy of Radium Cases. E. T. Newell.—p. 226.
139 Prevailing Indications for Complete Ablation of Tonsils and Adenoids. N. E. Hartsook.—p. 230.
140 How May We Better Conserve Vision: Special Plea for More Effective Means of Preventing Traumatism. L. M. Scott.—p. 235.

135 and 136. Abstracted in THE JOURNAL, May 4, 1918, p. 1331.

Wisconsin Medical Journal, Milwaukee

December, 1918, **17**, No. 7

141 Application of Psychiatry to Classification of Draft Registrants. D. Luten.—p. 255.
142 Treatment of Cleft Palate. M. N. Federspiel.—p. 258.
143 Strabismus Convergence, Its Early Recognition and Treatment in Young Children. P. H. Dernehl.—p. 271.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

November, 1918, **23**, No. 6

1 Localization of Foreign Body in Eye. A. H. Pirie.—p. 169.
2 New Form of Screen Localizer. J. A. Shorten.—p. 182.
3 Simple Methods of Localizing Foreign Bodies: (1) General. (2) Eye Work. D. B. McGrigor.—p. 188.
4 Roentgenography of Gall-Bladder. N. Macleod.—p. 191.

British Medical Journal, London

Nov. 30, 1918, **2**, No. 3022

5 Spolia Opima. J. Bland-Sutton.—p. 593.
6 Temporary Pegs for Amputation of Lower Limb. W. A. Chapple. —p. 597.
7 Cardiac Conditions in Soldiers. R. O. Moon.—p. 599.
8 Thyro-Toxic Heart. G. R. Hall.—p. 600.
9 Digressions. A. J. Campbell.—p. 601.

Canadian Medical Association Journal, Toronto

December, 1918, **8**, No. 12

10 *Effect of High Carbohydrate Feeding on Nausea and Vomiting of Pregnancy. J. W. Duncan and V. J. Harding.—p. 1057
11 Diagrams for Showing Limitation of Movements Through Joints, as Used by Board of Pensions Commissioners for Canada. D. E. H. Cleveland.—p. 1070.
12 How to Provide Effective Health Administration in Small (Rural) Municipalities. E. Pelletier.—p. 1077.
13 Disinfection After Communicable Disease. R. K. Anderson.—p. 1080.
14 Control of Influenza in Ontario. J. W. S. McCullough.—p. 1084.
15 Epidemic of Influenza in Montreal. S. Boucher.—p. 1087.
16 Polya's Method of Anastomosing Proximal Gastric Stump with Jejunum. E. M. Von Eberts.—p. 1093.
17 Irregularities of Heart, in Association with Visceroptosis. W. S. Morrow.—p. 1101.

10. Effect of High Carbohydrate Feeding on Nausea and Vomiting of Pregnancy.—Duncan and Harding have proceeded on the assumption that in the early toxemias of pregnancy the dominant factor is a metabolic one. They have utilized the physiologic results of Imrie and of Mottram to connect the fatty degenerated liver found in postmortem examination of fatal cases of pernicious vomiting with the mild and moderate cases of vomiting. A temporary lack of carbohydrate supply has been assumed. In practically all cases of nausea and vomiting in pregnancy, acetone bodies were found in the urine. The authors have endeavored to correct the deficiency of carbohydrate supply by administering glucose or lactose, but mainly the latter, and supplemented this by a high carbohydrate diet. In this way they have successfully treated over seventy cases of nausea and vomiting in pregnancy, including several severe cases of the pernicious type. The patient is advised to rest, as far as possible, demands of housekeeping are limited, and any exciting factors removed. Meat and fatty foods are eliminated from the diet and their place is taken by a liberal supply of carbohydrate food, such as potato, rice, oatmeal, vegetables and fruit. In addition, one to one and a half quarts of a 5 per cent. lactose solution are taken daily by mouth. If this solution is not tolerated by mouth it is given by rectum. The actual amount of lactose to use is determined by constant urine examination. With the first sign of lactosuria, the dosage is diminished. When the nausea and vomiting are fully controlled, the amount of lactose is rapidly cut down to about 15 gm. per day. The patient may rapidly return to ordinary diet. All women so treated recovered very rapidly, and were delivered at full term of healthy children.

Dublin Journal of Medical Science, Dublin

November, 1918, **146**, No. 563

18 Surgery of Chest as Carried Out at "The Front." W. Taylor. —p. 201.

Journal of Tropical Medicine and Hygiene, London

Nov. 15, 1918, **21**, No. 22

19 Classification of Trypanosomes. A. J. Chalmers.—p. 221.

Lancet, London

Nov. 30, 1918, **2**, No. 22

20 Standard of Cure in Treatment of Gonorrhoea. E. R. T. Clarkson.—p. 731.
21 Use of "Antigens" in diagnosis by Wassermann Reaction. C. H. Browning and E. L. Kennaway.—p. 733.
22 *Relative Content of Antiscorbutic Principle in Limes and Lemons. H. Chick, E. M. Hume and R. F. Skelton.—p. 735.
23 *Case of Repeated Cessation of Heart Beat. E. P. Poulton, and H. M. Stewart.—p. 738.
24 Spacing of Injections in Maintenance of a Pneumothorax. C. Lillingston.—p. 739.
25 Blue Sclerotics, in Connection with Other Hereditary or Congenital Abnormalities. N. Voorhoeve.—p. 740.

22. Antiscorbutic Principle in Limes and Lemons.—The antiscorbutic value of the juice of fresh limes (*Citrus medica*, var. *acida*) was compared experimentally by Chick and her associates with that of fresh lemons (*Citrus medica*, var. *limonum*) and was found to be distinctly inferior. Volume for volume of fresh lime juice possesses a potency of about one-fourth that of lemon juice. In one instance severe scurvy developing in a monkey on a diet containing a small daily ration (5 c.c.) of fresh lime juice was cured by an equal ration of fresh lemon juice. Preserved lime juice was found useless for the prevention of scurvy by the method employed. Experiments with preserved lemon juice are still in progress, but give promise of better results.

The experimental results are fully confirmed by a historical study of "lime juice" in connection with human scurvy. At the period when scurvy was eliminated from the British navy by its agency the term was used to express the juice of lemons, and it was not until the second half of the nineteenth century that the juice of West Indian limes was adopted in the navy and mercantile marine. The history of two Arctic expeditions, that of the Investigator, 1850, and that of the Alert and Discovery, 1875, was carefully investigated. The former, supplied with lemon juice, experienced remarkable immunity from scurvy during the first two years of great difficulty and privation; the latter, supplied with lime juice, suffered severely from scurvy at the end of the first winter spent in the Arctic regions.

23. Case of Repeated Cessation of Heart Beat.—Only one other case of arrest of the heart for so long as thirty seconds was found recorded by Poulton and Stewart. Their patient was a man, aged 67 years. During every two minutes the pulse completely stopped for forty-seconds. This sequence of events continued with regularity. There was no obvious abnormality about the heart. The patient was emphysematous and the apex beat barely palpable. There were no murmurs. When the pulse stopped no beat of the heart was audible with the stethoscope; nor was there any sound suggestive of auricular beats. No venous pulsation in the neck was observed. The man died with signs of cardiac failure.

Medical Journal of Australia, Sydney

Nov. 9, 1918, **2**, No. 19

26 Fifty-One Cases of Intussusception. P. L. Hipsley.—p. 383.
27 Some Common Faults in Midwifery Practice. R. Worrall.—p. 386.
28 Influenza Epidemic. A. L. Buchanan.—p. 388.

Archives des Maladies du Cœur, des Vaisseaux, etc., Paris

October, 1918, **11**, No. 10

29 *Aneurysm of Left Auricle. R. Lutembacher.—p. 434.
30 *Insufficiency of Left Ventricle. C. Laubry and L. Marre.—p. 458.

29. **Aneurysm of Left Auricle.**—Lutembacher published last year a case of this kind as a contribution to the study of bigeminal rhythm. In that case the cavity had a capacity of 400 c.c. It was not a simple retrodilatation secondary to a mitral lesion but an actual ectasia caused by grave and primary degenerative lesions of the wall of the auricle. It developed under his eyes from embolic obstruction of the affrent branches of the coronary artery. He now describes an additional case with a similar mechanism, but the wall of the auricle was already the seat of an old inflammatory process. The patients were young men; the first had a history of acute rheumatism, the other only a pleurisy without effusion in 1910. In the latter the aneurysm capacity was 500 c.c.

30. **Insufficiency of Left Ventricle.**—Laubry and Marre describe a case in which the slow and progressive insufficiency of the left ventricle had developed in consequence of the obliteration of the aortic orifice. There was no history of acute rheumatism in the case. The clinical picture had been extremely puzzling as the blood, passed through the narrow slit that was the only opening left, was too small in amount to induce any murmur. The necropsy findings are illustrated.

Bulletin de l'Académie de Médecine, Paris

Nov. 12, 1918, **80**, No. 45

31 Colloidal Tin in Treatment of Influenza. A. Netter.—p. 427.
32 Differential Diagnosis of Influenza Pneumonia and Pneumonic Plague. H. de Brun.—p. 437.
33 *Trench Fever. R. P. Strong.—p. 444.
34 *Bone Grafts. J. S. Dauriac.—p. 446.
35 *Tendon Grafts. J. Nageotte and L. Sencert.—p. 448.

33. **Report of Research on Trench Fever.**—As mentioned in the Paris Letter, Dec. 21, 1918, p. 2090, Strong relates that 103 experiences on human volunteers have absolutely established that trench fever is a specific infectious disease caused by a filtrable virus transmitted naturally by the bite of the body louse or by urine or sputum. In commenting on this report, Roux remarked: "This work of the American Commission is a model by the ingenious and vigorous manner in which it was conducted. Thanks to the American soldiers who volunteered for the experiments, so that the nature of the disease to which their comrades were going to be exposed could be ascertained, everything in regard to the etiology and prophylaxis of trench fever was rapidly cleared up. The method employed by the American Commission and which consists in experimenting on men ready to volunteer for the purpose, has already afforded decisive certainty in our knowledge of yellow fever and other diseases. The risks which it inflicts on the patients who thus victimize themselves are paid for by the results by which all humanity profits." The other members of the commission, besides Major Strong, are said to have been Major Homer Swift, Major E. L. Opie, Capt. W. J. MacNeal, Capt. W. Baetjer, Capt. A. M. Pappenheimer, Capt. A. D. Peacock and Dr. D. Rapport.

34. **Bone Grafts.**—Dauriac reiterates that, with F. Albee's technic, bone grafts can be counted on to repair vast losses of substance, when otherwise amputation would be inevitable. He has applied this technic to all the long bones and with constant and equal success. The graft must always be taken from the subject himself, and the intervention must be postponed until all suppuration is long past, and a course of remineralization has prepared the bones for repair. The graft is taken from the sound mate, and is cut long enough so the ends fit far into sound tissue at each end, and the graft is fastened in place only with absorbable substances, never with metal. The access to the focus must never be through the old cicatrix, as this might rouse latent infection. Of equal importance is the warning not to immobilize the limb too long, but give it a chance for the normal dynamic functioning of the bone. According to Wolff's law, then, the bone will assume the shape and strength which its function demands. His long experience with this method justifies, he says, the highest hopes from it to uncripple the cripples, and he urges a special service for reconstruction of this kind on a large scale.

35. **Tendon Grafts.**—Nageotte and Sencert bridged gaps of 3 or 4 cm. in the tendons of the palmar side of the wrist by introducing six segments of tendons from dogs. The tendons had been kept in alcohol for a month. Each graft was fastened in place with two catgut sutures at each end. The aponeurosis of the brachialis was drawn over the whole and the skin was sutured without draining, and healed by primary intention. All the fingers can be completely extended, and flexion is almost complete for all except the middle finger which cannot be completely flexed.

Bulletins de la Société Médicale des Hôpitaux, Paris

Oct. 11, 1918, **42**, No. 28

36 *Influenza. L. Rénon and R. Mignot.—p. 844; J. Thiroloix.—p. 898.
37 Sinusal Bradycardia of Myocardiac Origin. M. Descos.—p. 907.
38 *Tuberculosis of Traumatic Origin. M. Descos.—p. 911.
39 *Limits of Radioscopy of Lungs. C. Mantoux and Maingot.—p. 914.
40 Intermittent Fever with Meningococcus Septicemia. Serr and Brette.—p. 917.
41 Case of Lethargic Encephalitis. Serr and Brette.—p. 922.
42 *Influenza in Bretagne. P. Merklen.—p. 924.
43 *Evolution of Ameba of Dysentery. E. Job and Hirtzmann.—p. 928.
44 *Sign of Sciatica. L. Rimbaud.—p. 930.
45 Paralysis of Four Nerves in Foramen Lacerum. Rimbaud and Vernet.—p. 931.
46 *Acute Leukemia with Spirochetosis. Sicard and others.—p. 934.
47 Case of Icterohemorrhagic Spirochetosis of Cerebral Type. Pierre-Kahn and R. Debré.—p. 940.
48 Occupational Ridges in Skin of Back. D'Oelsnitz.—p. 942.

36. **Influenza.**—A similar article by Rénon and Mignot was reviewed recently in these columns. Thiroloix urges the importance of washing the hands before eating, and heating the loaf of bread in the oven the last thing before it is brought hot to the table. This sterilizes the outside from the contacts with different hands. The beverages should also be taken hot for the same reason, except wine from the bottle. All raw foods should be avoided during "flu" times. We should realize that every object and the air surrounding an influenza patient are liable to have been contaminated by droplets from him. Netter and Josué among others advocate suprarenal treatment, as a number of the symptoms in influenza reveal suprarenal insufficiency. Sergent declares that suprarenal treatment is usually too timid. It should be given in fractional doses, but up to 5 or 8 mg. is none too much. The subcutaneous or intramuscular route is preferable to ingestion. He suggests that instead of using convalescents' serum there might be advantage in transfusing whole blood, citrated, from the convalescent, and not the serum alone. This has proved very effectual in grave measles in Ribadeau-Dumas' hands. He intends to try it in influenza.

38. **Traumatic Pulmonary Tuberculosis.**—Descos' patient was a healthy aviator who did not seem to feel any evil consequences for about a month after a fall of 90 feet, hitting the left chest. Then fever developed and acute pleuropulmonary tuberculosis. There was little expectoration but tubercle bacilli were found in the sputum, and the seventh week acute pulmonary edema proved fatal. Necropsy disclosed all recent lesions.

39. **Limits of Radioscopy of the Lungs.**—Mantoux placed on the chest a piece of tuberculous tissue from a cadaver and found that even quite thick and large pieces of such tissue cast no appreciable shadow in radiographing persons of average build. The stethoscope may reveal lesions that escape the roentgen rays, and in any event the absence of roentgen findings cannot be accepted as conclusive demonstration as to the certain integrity of the parenchyma of the lung and of the pleura.

42. **Influenza.**—Merklen emphasizes that in his district influenza was mild for two or three months. Then it became virulent and now (in October) it is extremely virulent. Very few cases are observed in children, and the fatal cases are in the robust young people or older ones with already damaged lungs. Hot packs around the chest and fixation abscesses aid in subacute cases still capable of reacting. Venesection

should be tried in cases with cyanosis and pulmonary edema, but it is not so useful for toxic processes as for vasomotor disturbance.

43. **Evolution of the Ameba.**—Job and Hirtzmann report that the ameba of dysentery, such as we see it in the stools, is only one phase of the evolution of the parasite. The pathogenic phase is an intracellular parasitism. The young protozoön penetrates into a liver cell; at that time it is reduced to a homogeneous nucleus. The nucleus of the liver cell enters into karyolysis, the protoplasm develops vacuoles and tends to disappear completely, the parasite gradually supplanting its host entirely.

44. **Sign of Sciatica.**—Rimbaud noticed that in about 70 per cent. of his cases of surgical lesions of the sciatic nerve and in 25 per cent. of medical sciatica cases, the groove each side of the Achilles tendon seemed to be effaced, flattened out. It seems to be a manifestation of hypotony on the part of the muscles in which the Achilles tendon has its point of attachment. This useful objective sign of sciatic disease can be determined by placing the subject as if to elicit the Achilles tendon reflex.

46. **Acute Leukemia with Spirochetosis.**—The case described by Sicard and his co-workers differs from the other cases of "French spirochetosis" on record in that the clinical picture was that of a subacute leukemia, fatal in five months. The patient was a clerk of 46, and spirochetes were found in the urine during life and in the liver and kidney after death. Inoculation of guinea-pigs with blood and urine was negative, but the serum agglutinated promptly the ictero-hemorrhagic spirochete. The health had been normal before; no history of syphilis or malaria. The first symptoms were impairment of vision, loss of appetite, insomnia and digestive disturbance. Necropsy showed the liver in fatty degeneration but the kidneys and lungs were approximately normal and there was no enlargement of glands.

Paris Médical

Oct. 26, 1918, **8,** No. 43

49 Curable Forms of Acute Meningitis. P. Mauriac.—p. 326.
50 Incubation in Syphilis. A. Jambon and A. Tzanck.—p. 330.
51 Technic for Cultivating Bacteria from Typhoid Blood. L. Tribondeau.—p. 333.
52 Radioscopy in Case of Interventricular Communication in the Heart. M. Perrin and P. Malot.—p. 338.

Nov. 2, 1918, **8,** No. 44

53 The Explosions on the Battle Field. Chavigny.—p. 341.
54 Exploratory Thoracotomy for Tumors. E. Mériel.—p. 343.
55 *Tetanus in a Case of Complete Section of Spinal Cord. H. Claude and J. Lhermitte.—p. 345.
56 *Dangers of Epidermitis. H. Gougerot.—p. 348.
57 Dulness with Abdominal Effusions. Costantini and Vigot.—p. 352.

55. **Tetanus After Section of Spinal Cord.**—The projectile had pierced the spine and the paraplegia was of the total section type. The thirty-second day the legs developed severe tonic and clonic contractions with trismus and sweating of the upper part of the body. Death followed in four days, necropsy confirming the anatomic section of the cord at the eighth dorsal segment. The case reaffirms the independent activity of the lower part of the spinal cord.

56. **Epidermitis.**—Gougerot warns of the danger of chronic epidermitis as liable to set up erysipelas, etc., if the skin is incised at a point thus affected.

Presse Médicale, Paris

Nov. 11, 1918, **26,** No. 62

58 *Crippled Digestions. M. Labbé.—p. 569.
59 *Open and Closed Pulmonary Tuberculosis. C. Mantoux.—p. 570.
60 *Radical Cure of Genital Prolapse. S. Mercadé.—p. 573.

58. **Crippled Digestions.**—Labbé discusses how to exclude actual anatomic disease or definite physiologic upset, and recognize what he calls crippled digestions, and determine the type of the latter. The treatment required differs from case to case, but good hygienic conditions give the digestion the best chance to right itself.

59. **Open and Closed Pulmonary Tuberculosis.**—Mantoux analyzes the later course in 2,000 men with or suspected of pulmonary tuberculosis that have passed through the *service de triage* at the Laennec hospital. He emphasizes the differences between "open" tuberculosis, that is, the cases with ulceration from the start, and those with healed ulceration, and those that have not presented ulceration, that is, the "closed" cases. The tuberculosis is progressing but there is no ulceration. The affection is relatively mild; none of the men in this group have died. He emphasizes that radiography gives much more instructive findings than radioscopy. In conclusion he refers to Heise and Sampson's recent description of a peribronchial form, rarely opening into a bronchus, and suggests that this may be the habitual anatomic form of nonulcerative pulmonary tuberculosis.

60. **Treatment of Prolapse of Female Genital Organs.**—The principles of Mercadé's method have already been described in these columns (Nov. 9, 1918, p. 1615). It is based on the assumption that with a tendency to prolapse it is the roof of the anterior vagina that sags first under the strain from the abdomen. The bladder sags next, and the uterus not until after this. He cuts a lozenge out of the roof of the anterior vagina, and then detaches the bladder very carefully, pushes it up, and makes a solid support for it by suturing the levator ani muscles together along the median line. Six large illustrations show the various steps of the method, as he has applied it in seven cases, all radically cured by it.

Progrès Médical, Paris

Sept. 21, 1918, **33,** No. 39

61 *Intracranial Hemorrhage of the Newborn. H. Vignes.—p. 321.
62 *Fracture of Clavicle. F. Hidden.—p. 322.
63 Iodin in Treatment of Warts. Loison.—p. 324.

Sept. 28, 1918, **33,** No. 40

64 Gluteal Reflex with Lesions of Sciatic Nerve. Lhermitte.—p. 329.
65 Symptoms of Incomplete Ileus. J. Fiévez.—p. 331.
66 Access to Splenic Flexure. J. Fiévez.—p. 332.
67 *The Wassermann Reaction. Carle.—p. 333.
68 Hysteria Simulating Epilepsy. Bernheim.—p. 335.

61. **Intracranial Hemorrhage in the New-Born.**—Vignes declares that although the prognosis may not be absolutely fatal, yet the sequels in the survivors justify the most heroic measures to clear out the extravasated blood. He describes the symptoms liable with hemorrhage above and below the tentorium. Operating without delay and reducing the loss of blood to the minimum will aid in keeping down the mortality which to date is 50 per cent. Lumbar puncture may be useful, repeated two or three times a day if it brings blood. Simmons incised the fontanel and dura, and evacuated the blood rapidly in this way in some desperate cases. If the skull is to be opened, this should be on the side opposite the arm presenting the most pronounced convulsions. The base of the skull flap should be about 5 cm. across, and every vessel that has to be severed must be ligated with fine silk. If the blood is not clotted, he advises leaving a drain for a day, puncturing if hemorrhage in the ventricle is suspected. If the brain is bulging, without hemorrhage, bilateral trephining will relieve the pressure. If the injury is below the tentorium, the child is quiet and does not scream but is somewhat cyanotic and presents nystagmus. As the blood flows down the spinal subarachnoid space, there is stiffness of the neck, and diffuse rigidity, with erection. Lumbar puncture always shows blood and the fontanels do not bulge. With the subtentorial hemorrhage, Cushing's occipital incision is called for.

62. **Fracture of the Clavicle.**—Hidden expatiates on the advantages of a device which draws the shoulders outward, backward and upward, thus immobilizing the fractured clavicle in the best position for repair. This is accomplished with two round metal rings which fit over the shoulders and are tied together at the back and also at the front. These rings can be made hollow or they can be made of wire with an envelope of plaster. They are wound with cotton and the force is applied in tying the rings together at the back. The arms are left entirely free with this contrivance, but it is better to keep the patient in bed the first day. The rings are bent a little to fit the parts, as is shown in the illustrations.

67. **The Bordet-Wassermann Reaction.**—Carle has been investigating this reaction in connection with the date of contamination. He found that it is rarely positive before

the fiftieth day from the date of infection. Hence a dubious or negative response before that must be regarded with suspicion. Even before the fiftieth day, however, there is usually some more or less slight positive response that warns to be on the alert. A persistently negative response, on the other hand, is strong presumption that the genital lesion is merely a soft chancre. In about one case in every twenty-six in his experience, the response persisted negative until the roseola appeared—then veered to positive. In the second phase of untreated syphilis, the Wassermann reaction is most reliable, but treatment should never be suspended in this stage because the Wassermann reaction has become negative. In any event, he reiterates, tentative specific treatment should be given a trial in all dubious cases, regardless of the Wassermann findings.

Revue Médicale de la Suisse Romande, Geneva

October, 1918, **38**, No. 10

69 Mongolian Idiocy and Quadruped Gait. P. Bourdillon.—p. 585.
70 *Menstrual Psychosis. F. Naville.—p. 591.
71 *Stones in the Appendix. F. Blanchod.—p. 599
72 *Ileus from Cherry Stones. A. Kotzareff.—p. 611.
73 Influenzal Paralysis of Soft Palate. L. Du Pan.—p. 613.

70. **Menstrual Psychosis.**—Naville reports a case of "dream delirium" in which the erotic delirium was accompanied by melancholia, ideas of suicide and a tendency to mania. The young woman was of the microcephalous type, with a tendency to migraine and dysmenorrhea, and inability as a child to keep up with her class in mathematics. Cases of this kind are often mistaken for dementia praecox, but we should be careful not to regard every acute mental incident in a person naturally below par or a psychopath as necessarily the indication of a psychosis with a progressive course. In this case measures to promote menstruation and regulate the functions generally were soon followed by subsidence of the tendency to psychosis, and the young woman has had no recurrence since, during the six years to date, although she is still childish and emotional.

71. **Calculi in Appendix.**—Blanchod was examined with the roentgen rays forty-five hours after beginning of symptoms which were explained by the shadows of two calculi which projected above the crest of the ilium. The urine was normal, which exculpated the ureters, suspected at first. The calculi were found in a retrocecal pus pocket, and the appendix was totally gangrenous. Bronchitis followed the operation, and then both parotid glands suppurated, discharging through the ducts of Steno. The parotitis seemed to act like a fixation abscess and prompt recovery followed. As a boy of 13, he had been kept in bed for three weeks with appendicitis but the appendix had never given any signs of its existence otherwise. If he had known he was harboring two calculi in his appendix he would scarcely have ventured on the trip to India as inspector for the Red Cross of prison camps in the Orient. He was far in the interior of India when intense pain developed in the right flank. He remarks that his case reaffirms the frequent difficulty of diagnosing appendicitis with stones. J. Roux has reported nine cases in seven of which the roentgen rays revealed the stones. In one of the cases the stone in the appendix induced a set of symptoms exactly like those from a stone in the ureter. In another case the stone was not discovered until investigating to learn why the fistula from the operation on the appendix refused to heal. In another case the supposed stone must have been the shadow cast by a calcified gland in the ileocecal angle. Radiography was constantly negative in one case until the fourth application, when the calculus cast an unmistakable shadow. In another case the calculus found in the appendix at the operation had never cast any shadow. The case in Blanchod's own person is the fourteenth on record, he says, in which the calculus was revealed by the roentgen rays before the operation.

72. **Ileus from Cherry Stones.**—Two tumors with a tender zone between, all in the descending colon, proved to be an accumulation of 712 cherry stones. No cherries had been eaten for several months, and microscopic examination at necropsy revealed incipient malignant disease. The latter had probably interfered with normal peristalsis.

Correspondenz-Blatt für Schweizer Aerzte, Basel

Nov. 16, 1918, **48**, No. 46

74 Treatment of Anemias. W. Löffler.—p. 1521.
75 *Ethyl-hydrocuprein (Optochin) Amaurosis. M. Ujiie.—p. 1550.

75. **Amaurosis Under Ethyl-Hydrocuprein.**—Ujiie reports the case of a girl of 10 who died in the third week of a pneumococcus peritonitis with sudden stormy onset in the midst of health. Complications on the part of the lungs had followed a laparotomy which had confirmed the diffuse suppurative peritonitis. The child was then given six doses of 0.2 gm. ethyl-hydrocuprein (optochin) at four hour intervals. Two days later there was total amaurosis which persisted till death, only slightly receding toward the last, allowing perception of light. The microscope showed edema and vacuoles in the retina, with swelling and beginning destruction of the nerve fibers in the optic nerve. Necropsy of some pneumonia patients who had taken optochin without disturbance in vision showed the optic nerve entirely normal. Uhthoff has also reported recently two cases of optochin amaurosis in men of 28 and 45 with extensive destruction of the medullary sheath of the optic nerve as evidenced by Marchi staining. All the findings readily explain why in one case there may be complete and integral restitution while in another permanent damage may result.

Policlinico, Rome

Nov. 3, 1918, **25**, No. 44

76 War Wounds of Nerves. M. Fasano.—p. 1049. Cont'n.
77 *Autoserotherapy in Influenza. L. Meille.—p. 1055.
78 *Radioscopic Records. V. Stenico.—p. 1057.
79 Criminal Abortions. E. Santi.—p. 1057.
80 *Silver Nitrate for Mustard Gas Lesions. G. Viale.—p. 1061.

77. **Autoserotherapy in Influenza.**—Meille reports favorable experiences with subcutaneous injection of 1 or 2 c.c. of the patient's own serum, taken from the blood drawn twelve hours before and set aside in a slanting test tube. The complications of the influenza did not seem to be modified, but the general condition showed marked improvement. Saline infusion proved a useful adjuvant, with venesection unless the heart action was too weak for this.

78. **Radioscopic Records.**—Stenico places a sheet of glass over the screen and draws on this the outlines of the shadows cast on the screen. It is easy to get a copy of this by applying a moistened paper, a sheet of cardboard, and a bag of sand on top, as a letter is copied in a letter press. Two or even three of these copies can be made, and they prove valuable records of the cases.

80. **Mustard Gas and Silver Nitrate.**—Viale was unable to confirm Amantea's statements in regard to the effectual neutralization of yperite by silver nitrate. He experimented on the human while Amantea's research was done mostly on animals. It did not seem to impede or limit the injury from the mustard gas, but it had an unmistakable action in promoting the healing process. Viale's experience also teaches the necessity for leaving the lesions open to the air. The fumes held in by a dressing cause new lesions.

Riforma Medica, Naples

Nov. 2, 1918, **34**, No. 44

81 *Nature of Febrile Pandemic. U. Baccarani.—p. 870.
82 *Epidemic Meningitis. R. De Nunno.—p. 872.
83 Emetin in Rebellious Malaria. E. Carlino.—p. 875.
84 *Febrile Pandemic. Referendum. Ceconi and others.—p. 876.

81. **Nature of Influenza.**—Baccarani is inclined to believe that influenza is a polybacterial epidemic. No one germ is responsible for it. The germs causing it have had their virulence suddenly enhanced by some mysterious influence, electric, atmospheric or telluric, some sudden modification of the physical and chemical ambient in which mankind lives. Besides the bacteria, the pathogenic factor is probably a complex of many minute causes. These of course are beyond our ken. Too little is known yet of these *cyclonoses* for us to hazard any serious contributions to this important subject.

82. **Laboratory Inferences in Meningitis.**—Nunno's tabulations are not published with this article but will accompany the reprints. They are said to show the various findings in

the cerebrospinal fluid as compared with the clinical course of epidemic meningitis. The urea content seems to have a bearing on the prognosis, but not the albumin content, although the latter may be useful in differentiation from tuberculous meningitis. Determination of the chlorids throws light on both diagnosis and prognosis, as also the content of substances reducing the Fehling reagent. When the fluid is limpid or only slightly turbid, epidemic meningitis is indicated by a content in albumin close to 3 per thousand; of chlorids above 6.09 and below 7.32 per thousand, and the reducing substances diminished or lacking. A favorable prognosis is indicated by chlorids above 6.43 and urea below 0.24 per thousand, and the reducing substances not too low. The Vincent-Bellot precipitation test is valuable for the differential diagnosis. It is more reliable when done with the zonal technic. If the meningococci are found loose in the fluid, especially when associated with other germs, the outlook is extremely grave. As the meningococci are frail, they are liable to die when sent to a distant laboratory for identification. The diagnosis can usually be based on the precipitation reaction and the chemical tests mentioned above so that the specific antiserum can be injected without delay. Nunno regards a limpid fluid at the first examination—before serotherapy has been attempted—as a very unfavorable sign.

84. **Quinin in Influenza.**—Ceconi relates the significant fact that in a town in Italy where malarial soldiers are segregated, there has not been a case of influenza among the malarial inmates of the four hospitals, although the physicians, nurses, clergy and others connected with the hospital had the disease in epidemic form. Is malaria incompatible with influenza? he queries, or does the quinin the men are taking protect against it?

Anales de la Facultad de Medicina, Montevideo

January-February, 1918, **2**, No. 13-14

85 Polycythemia. R. Lutembacher.—p. 849.
86 Relations Between Colon and Diaphragm. D. Prat.—p. 873.
87 Radium Treatment of Uterine Cancer. M. B. de Bengoa.—p. 886.
88 Case of Achondroplasia. J. C. M. Fournier.—p. 892.
89 Vaccination Against Typhoid in French Army. Claveaux.—p. 901.
90 Antigonococcus Vaccine Therapy. J. E. Moreau.—p. 918.

Archivos Españoles de Pediatria, Madrid

September, 1918, **2**, No. 11

91 *Defective Development of the Blood. G. Pittaluga.—p. 513.
92 *Mercurial Injections in Children. E. A. Sainz de Aja.—p. 530.
93 Pouch in Buttocks Opening into Rectum. Juaristi.—p. 533.

91. **Defective Development of the Blood.**—Pittaluga's classification of blood diseases has been widely adopted, especially his term hemodystrophies. This represents the group of cases in which the biochemical abnormalities predominate over the histopathologic, and a neuropathic factor is manifest, either directly or through the mediation of the glands with an internal secretion. A hereditary influence is also apparent, congenital and familial factors intervening either directly or indirectly. The group contains the so-called hemorrhagic diatheses, purpuras, scurvy, hemophilia, paroxysmal hemoglobinuria, and hemolytic jaundice. These hemodystrophies may be classified further as frankly congenital or inherited, such as hemophilia; those depending on dietetic or toxic action or deficiencies, such as scurvy, and those due to some virus. In hemophilia there seems to be both a delay in the coagulation process and a special fragility of the walls of the vessels. Pittaluga has encountered a number of cases in which inherited syphilis was clearly a factor in this generalized lesion of the media and intima coat of the vessels, both aplasia and degenerative processes being evident. The influence of inherited syphilis in the pathogenesis of the exudative diathesis and the eosinophilic diathesis has not been appreciated hitherto. The clearing up of these problems is in the hands of the pediatrists. They can investigate the heredity and bring light to bear on the etiology of many constitutional diseases, and above all on what may be called the hemodystrophic states. Polycythemia and chlorosis have their foundations laid before puberty, although they may not develop until later. All these hemodystrophies testify to the close connection between the blood-producing organs and the endocrine system, and to the transmission of this connection to the offspring, along with its reflected alterations in the nervous system. All this field lies open to the pediatrists more than to any one else.

92. **Mercurial Treatment of Infants.**—De Aja lauds the efficacy of a few harmless injections of mercuric benzoate (benzoato de mercurio), 1 mg. per kg. of weight, twice a week, as a means of treating syphilis in infants. It has a dual action, both as mercury and as a benzoate, modifying favorably any lesions in the liver and respiratory apparatus. For infants over a year old, the injection can be of 0.5 to 1 cg. twice a week. He makes the injection in the back, near the spine, as deep as possible, massaging afterwards. Of course this technic is for exceptional use only; inunctions are more convenient, but it has its special field when other methods fail and arsenical preparations cannot be used, or when mercury is required besides.

Brazil-Medico, Rio de Janeiro

Oct. 5, 1918, **32**, No. 40

94 Flagellate Parasites. IX. O. O. R. da Fonseca.—p. 313.
95 Gregarinas. G. Hasselmann.—p. 314.
96 *Treatment of Trichomoniasis. U. Paranhos.—p. 314.

Oct. 12, 1918, **32**, No. 41

97 Further Research on Gregarinas. XII. C. F. Pinto.—p. 321.

96. **Trichomoniasis.**—Paranhos has been testing various means to rid the bowels of the *Trichomonas hominis* which is not rare in his region in Brazil. Flushing the intestines with a 1 per thousand solution of iodin proved effectual but too inconvenient for general use. A complete cure was realized, however, without untoward by-effects, by a course of methylene blue, 0.2 gm. taken in a capsule every morning, fasting. This amount is tolerated for many weeks, and a sodium sulphate purge, once a week, shows when the parasites have disappeared. All his patients were cured in eight weeks, and none of the parasites have been found in the stools during the months since. Castellani has reported similar success with it in such cases.

Cronica Medico-Quirurgica, Havana

August, 1918, **44**, No. 8

98 Rabies in Cuba. J. S. and F. M. Fernandez.—p. 445.
99 Panspermia and Heterogenesis. A. P. Milice.—p. 452.

Gaceta Medica de Caracas

Oct. 15, 1918, **25**, No. 19

100 *Ambard's Ureosecretory Coefficient from the Standpoint of Anesthesia. L. Razetti.—p. 197; Lobo.—p. 199.
101 *Organization of Campaign against Venereal Diseases. L. Razetti.—p. 199; Risquez and others.—p. 203.
102 Effect of Chloroform on the Heart. E. Fernández.—p. 205.
103 *Idiosyncrasy to Antipyrin Salicylate. E. P. de Bellard.—p. 208.

100. **Ambard's Ureosecretory Coefficient.**—Razetti reaffirms that not even Ambard's formula has proved the long sought index of conditions which will permit general anesthesia and a major operation without special risks.

101. **Campaign Against Venereal Disease.**—These communications relate what has been done in this line in other countries, and propose measures to be adopted in Venezuela. At the close of the discussion the Academia Nacional de Medicina voted resolutions calling on the National Public Health Service to organize free dispensaries for the venereal diseases, separate for the sexes, with private and public conferences, instructions in various centers, circulars, etc., to educate the public to apply to these dispensaries. If these measures fail, extreme measures of compulsion may become necessary. Medical inspection of places and centers where venereal diseases are known to be prevalent, is also advised, and the discreet gradual registration of all prostitutes. The resolutions concluded with the offer of the individual and the collective aid, private and official, of the members of the Academia de Medicina, to help in the prophylaxis of venereal diseases.

103. **Idiosyncrasy to Antipyrin Salicylate.**—De Bellard prescribed a few doses of antipyrin salicylate, each 0.75 gm.,

for a colored man of 40 who complained of pains in certain muscles. The first dose caused burning and edema to such an extent that it seemed that a caustic had been taken by mistake. By the next day the lips and mouth looked as if lined with yellow cotton, and in two days the tissue affected was cast off, the cheeks, lips, gums and pharynx being thus denuded, and the whole course of the esophagus smarted and there was also pain in the epigastrium, whenever the man took any water or milk, the only things allowed. The ulceration was apyretic and healed in the course of two weeks without leaving a trace. Two years before the man had had a similar experience, also after a single dose of antipyrin salicylate, but the connection with the drug was not suspected at that time. To convince the man that the trouble was in him and not in the drug, Bellard and the man's wife took some of the powders before him, with no appreciable by-effects.

Prensa Medica Argentina, Buenos Aires

Sept. 30, 1918, **5**, No. 12

104 *Spastic Closure of Gastro-Enterostomy Opening. C. B. Udaondo. —p. 118.
105 *Effect of Alcohol on Nerve Centers. A. Jones.—p. 120.

Oct. 10, 1918, **5**, No. 13

106 *Pathogenesis of Alcohol Intoxication. V. Ducceschi.—p. 125.
107 *Plastic Motor Operations. G. B. Arana.—p. 126. Commenced in No. 12, p. 113.
108 Case of Senile Dwarf Growth. (Progeria.) J. Orrico.—p. 133.

104. **Spastic Closure of Gastro-Enterostomy for Pyloric Ulcer.**—Udaondo reports two typical instances of this. The gastro-enterostomy had put an end to years of suffering but in time the new opening contracted spasmodically so that the old train of symptoms returned. They are the only instances of the kind he has encountered in seventy-one operative cases of pyloric ulcer, although a number of them presented the clinical picture of vagotony with gastric hypertony. In his first patient, a man of 47, an exploratory operation and gastro-enterostomy on two different occasions gave relief for five years, and then the symptoms and radioscopy showed complete occlusion of the new opening. Under a course of atropin, clinically normal conditions were restored for a year when he succumbed to pneumonia. Necropsy showed one of the new openings entirely permeable. In the other case the man of 34 presented miosis, slight bradycardia, hyperchlorhydria and colonic spasm. Under daily injection of 1 mg. of atropin, all disturbances ceased in two days except for a slight burning which yielded to an alkaline. In less than two weeks the gastro-enterostomy opening was working perfectly, and there has been no further disturbance during the months since. In conclusion Udaondo remarks that the vagus and sympathetic systems are not so strictly selective as some believe. They might react indiscriminately to certain other drugs.

105. **Effect of Alcohol on Nerve Centers.**—Jones gives illustrations of the histopathology of alcoholism. Alcoholism may be assumed, he remarks in conclusion, when besides the lesions of chromatolysis in the third layer of large pyramidal cells of the brain, there is dilatation or congestion of the capillaries, thickening of the meninges, without leukocyte infiltration, and small hemorrhages.

106. **Pathogenesis of Alcohol Intoxication.**—Ducceschi has been continuing his research on the cholesterol and lecithin content of the blood of dogs kept under the action of alcohol. He here announces that besides the unusually high content of the blood in cholesterol and lecithin, the neutral fat of the blood is also increased. There seems to be an actual mobilization of the lipoids, a lipoidolysis, which may be a defensive function on the part of the organism.

107. **Plastic Motor Surgery.**—Arana reproduces a large number of illustrations of what has been done in this line in Italy and elsewhere, and describes five cases in which he has operated to provide volitional control of the artificial limb or prosthesis. There are forty-one illustrations in all. He relates that since the legislation on workmen's compensation two years ago, the amputated at Buenos Aires who would be proper subjects for this kinematic surgery, refuse to permit any operation which might reduce their incapacity as this would cut into their pension. In one of the cases the "key loop" was unintentionally provided. The hand had been amputated at the carpometacarpal articulations, and the carpus acts like a hook to grasp objects. The play of the flexor and extensor muscles gives here a power of 20 kg. with an excursion of 3 cm. In another case the arm had been amputated at the elbow at the age of 3, and the man of 33 now has powerful muscular control of the stump, the olecranon being drawn up by the muscles to form a useful hook or key with which objects are seized. He steadies them by holding them against his chest. Excursions of 5 cm. are possible. Arana tried to devise prosthetic apparatus to utilize these kinetic forces, and has succeeded in this case in providing an artificial hand and arm which is able to lift 2.5 kg. and is capable of excursions up to 2 cm. One illustration shows him lifting a glass of water with his "kinematic hand." The amputations in the other cases were in the upper third of the arm or shoulder. An Indian plastic flap was used to cover the pectorobicipital loop in each case.

Repertorio de Medicina y Cirugia, Bogotá

October, 1918, **10**, No. 1

109 *Prophylaxis of Tuberculosis. L. F. Angel.—p. 8.
110 *Epidemic of Diphtheria. G. Marquez.—p. 30.
111 Metabolism in Diabetes. E. Gomez.—p. 37.

109. **Prophylaxis of Tuberculosis.**—Angel relates that the first legislation in regard to tuberculosis in Colombia dates from 1916. The public health service was then reorganized and a subsidy of $30,000 was appropriated to establish antituberculosis dispensaries in various centers of population where the local authorities aid in the work. The law provides for isolation of the tuberculous in special departments of hospitals and prisons. Angel insists, however, that the best prophylaxis of tuberculosis is by medical inspection in the schools, and segregation of the weakly and backward in a special school where they could be trained in body and mind to approximate normal. If legislators realized the importance of these schools for bringing those predisposed to tuberculosis safely through the dangerous years, great progress would be realized in stamping out tuberculosis at the source. It requires the teaching of hygiene by physicians, individual effort, and direction by the state. He speaks as if medical inspection of schools in Colombia had not yet been realized, but this he regards as the keystone of progress in this line, especially when supplemented by special schools for the abnormal.

110. **Diphtheria at Bogotá.**—Marquez remarks that diphtheria in Colombia does not seem to be as grave a disease or as contagious as elsewhere, but it has been growing more contagious in recent years. One peculiarity of diphtheria in Bogotá has been that it seemed to be restricted to well-to-do families. He knows of only three cases among children of the dispensary class.

Revista de Medicina y Cirugia, Havana

Nov. 25, 1918, **23**, No. 22

112 *Papillomas on Vocal Cords. J. M. Penichet.—p. 615.
113 Epidemic Influenza. L. Ortega.—p. 619.

112. **Papillomas on the Vocal Cords.**—The boy of nearly 4 was brought to the clinic almost suffocating, and syncope followed attempts to examine the throat, compelling artificial respiration and heart stimulants. Then tracheotomy was done and the papillomas were cauterized with 2 per cent. silver nitrate. The child expelled scraps of the papillomas from time to time but it took nearly a year and a half before the child began to speak normally. The tracheotomy opening is to be closed now.

Revista de Medicina e Cirugia Practicas, Madrid

Sept. 28, 1918, **120**, No. 1524

114 *Retention of Placenta from Local Contraction. F. Venegas.—p. 353.

Oct. 7, 1918, **121**, No. 1525

115 Hypochondriac Psychasthenia. R. del Valle y Aldabalde.—p. 5.

Oct. 14, 1918, **121**, No. 1526

116 Acute Accidents in Chronic Partial Intestinal Occlusion. J. Blanc. —p. 33.

114. **Retention of Placenta from Isolated Contraction.**—Venegas has had this mishap occur four times in three cases.

Part of the placenta was held firm by an isolated ringlike contraction of the uterine wall above it. The only means to dislodge it proved to be to work one and then two fingers into this tight ring and gradually stretch it until the contracture was overcome. Then there was no further trouble.

Semana Medica, Buenos Aires

Sept. 19, 1918, **25**, No. 38

117 *Cataphrenias. A. Austregésilo.—p. 365.
118 Uterine Fibromas. C. A. Castaño.—p. 371.
119 Spinal Anesthesia. G. Palacios.—p. 377.
120 *Comparison of Pubiotomy and Symphysiotomy. T. A. Chamorro. —p. 378.

117. **Cataphrenias.**—By this term, Austregésilo defines a state of mental debility of the dementia type. It differs from dementia, however, in that it may retrogress and complete recovery ensue. He has had a number of patients of this type, the diagnosis wavering between dementia praecox, chronic mental confusion and manic depression, and insanity of the confusional or stupid form, but by the end of six months to three years the marked improvement or complete cure upset all his theories as to the nature of the psychosis. He describes a few cases, all in young men and women, of this acquired psychic deficit which may retrogress or may progress to actual dementia praecox, chronic mental or catatonoid manic-depressive insanity.

120. **Pubiotomy and Symphysiotomy.**—In this eighth instalment of Chamorro's clinical and surgical comparison of these operations, he discusses the technic for the wholly and partially subcutaneous method, and warns of every point liable to cause difficulty. He also describes how to manage the case to ensure spontaneous delivery.

Siglo Medico, Madrid

Sept. 14, 1918, **65**, No. 3379

121 Pituitary Treatment. R. B. de Bengoa.—p. 749.
122 *Structure of Visual Organs of Certain Insects. S. R. Cajal. —p. 753.

122. **Visual Organs of Insects.**—Cajal's research has convinced him that the facetted eyes of insects serve for perception of color and for vision during the day, while the ocellus eye is an organ hypersensitive to light, and is depended on to guide the insect in the dark.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

Oct. 12, 1918, **2**, No. 15

123 *Racemose Aneurysm on the Head. W. Noordenbos and R. de J. de Jong.—p. 1224.
124 *Gastro-Enteritis of Unknown Origin. K. Wassenaar.—p. 1235.
125 Electricity in Examination of Children. H. A. Stheeman.—p. 1237.
126 Case of Habitual Subluxation of Knee. J. H. Engelkens.—p. 1241.

123. **Racemose Aneurysm of the Head.**—The case reported was remarkable in the extent of the area of the scalp covered by the cirsoid aneurysm, also in the successful operation, and in the microscopic examination of the aneurysm tissue immediately after its removal. The patient was a man of 34. At 17 he had applied for excision of a small tumor on the previously normal scalp, but as the tumor was found pulsating, the excision was refused until, at 34, the tendency of the aneurysm to bleed spontaneously compelled intervention. The operation was done in one sitting after ligation of the external carotid and frontal arteries on both sides, under local anesthesia, with epinephrin, the patient seated. Catgut was passed around each of the afferent vessels and tied over a roll of gauze. The pictures show ten of these little rolls of gauze on one side of the scalp, one at the root of the nose, one exactly opposite at the back of the head, one just above the ear, and the others scattered in series along the course of the arteries. Inside this crown of gauze rolls the main aneurysm was excised, the skull and periosteum being found normal. There was no hemorrhage except from two small arteries in the periosteum, which was easily controlled. There was no fever or suppuration, and the gauze rolls and catgut were removed the ninth day. By this time the whole network of vessels on the scalp had subsided. A few weeks later the defect in the skull was covered with Thiersch flaps, the whole intervention a complete success. In some of the cases on record the attempt to save part of the scalp in the aneurysm region proved disastrous as the tissues are pathologic and friable. Several who tried to operate without the preliminary ligation of the carotid had grave hemorrhages. In one case the patient was unable to leave the hospital for seven months. The common carotid cannot be ligated for the purpose. After removal of the main tumor in the case reported, the afferent vessels had disappeared without a trace by the ninth day.

124. **Epidemic of Gastro-Enteritis.**—Wassenaar describes an epidemic of abdominal pain and other gastro-intestinal disturbances affecting 500 of the 6,500 Belgian refugees in a certain camp. Only five died, but their deaths were sudden. No cause could be discovered unless the whole trouble is accepted as a gastro-intestinal form of influenza.

Hygiea, Stockholm

Oct. 31, 1918, **80**, No. 20

127 Successful Operative Case of Cardiospasm with Dilatation of the Esophagus. E. Lindström.—p. 1169.

Ugeskrift for Læger, Copenhagen

Oct. 31, 1918, **80**, No. 44

128 *Habitual Constipation VII. T. E. H. Thaysen.—p. 1729. Conc'n.
129 *Influenza and Pulmonary Tuberculosis. G. E. Permin.—p. 1739.
130 *Influenza and the Copenhagen Medical Society. V. Bie.—p. 1741.
131 *Fatal Cocain Poisoning. W. Møller.—p. 1743.

128. **Habitual Constipation.**—Thaysen concludes his seventh study of this subject with the statement that rectum constipation formed 60 per cent. of the 125 cases of which he has been making a special roentgen study. He emphasizes that it is important for treatment to know whether the colon or the rectum is the seat of the disturbance, and especially whether the ascending colon is involved or not.

129. **Influenza and Pulmonary Tuberculosis.**—Permin analyzes forty-five recent cases of influenza occurring in persons with pulmonary tuberculosis. All phases were represented and in some the tuberculosis was evidently aggravated but in quite a large proportion the intercurrent influenza has apparently harmlessly subsided. In eight other cases the first symptoms of tuberculosis developed after a recent attack of influenza. His practical conclusion is that the tuberculous must avoid infection with influenza with the strictest care, keeping away from contacts and poorly ventilated rooms, etc. There is reason to assume that the effect of the influenza will become more apparent in the course of the winter on persons with mild tuberculosis, and provision must be made for institutional care of an unusually large contingent of the tuberculous in the next few months.

130. **The Copenhagen Medical Society and the Epidemic.**—Bie records with great satisfaction the thorough organization of the Copenhagen Medical Society to handle the epidemic of influenza, with the aid of volunteer motor car drivers, visiting nurses and women to help them, and financial and other support from the city authorities. The school kitchens were utilized to prepare food for the sick, and volunteers distributed it. One of the newspapers collected a subscription which was given to the medical society, enabling the members to relieve pressing needs as they met them, and this without public charity. Enough of the money is left to organize some convalescent homes which will fill a great want. On the whole, the systematic organization of the medical society in this emergency has worked with surprising smoothness and efficiency both for physicians and the sick.

131. **Fatal Cocain Poisoning.**—The man of 52 died on the table after local anesthesia for a herniotomy, and it was found that a 10 per cent. solution of cocain had been injected by mistake instead of the supposed 2 per cent. novocain solution. The bottles were kept on the same shelf, with the same size, shape and color of label, and Møller protests against this practice, urging that dangerous substances should be kept in special vials. The sudden death had been inexplicable at first, the convulsions, clonic spasms, cyanosis and coma proving fatal notwithstanding stimulants, artificial respiration and massage of the heart. This communication is an abstract from a Swedish journal.